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Do Trauma Survivors Experience Shame after Fear?
An Experimental Examination of a Basic Assumption in the Trauma Literature

A dissertation submitted in partial
fulfillment of the requirements for the
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by

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Abstract

The dominant theory of PTSD and, subsequently, current gold standard PTSD treatments are based on a model of dysregulated fear. However, a growing body of research suggests that other emotional responses, like shame, are important contributors to PTSD symptom maintenance. The current study sought to forward the trauma literature by using an experimental paradigm to test if trauma survivors, especially those distressed by an interpersonal (vs. non-interpersonal) trauma, experience shame in response to day-to-day experiences of fear. This experimental study used a pre-post between group design in which participants ($N = 178$) were randomized to receive either a fear or neutral emotion prime with postmanipulation state shame serving as the outcome measure. As predicted, the fear emotion prime interacted with PTSD symptom level to significantly predict postmanipulation state shame. Among participants who reported an interpersonal index trauma and received the fear emotion prime, those with high PTSD symptom levels reported significantly more postmanipulation shame than those with low symptom levels. Interestingly, among participants who reported a non-interpersonal index and received the fear emotion prime, those with high PTSD symptom levels reported significantly less postmanipulation shame than those with low symptom levels. Exploratory analyses did not implicate emotion regulation skill deficits in this relationship. This study contributes to the literature by demonstrating the relationship of shame to daily experiences of fear in the maintenance of PTSD symptoms, but further exploration into the dynamics of fear, shame, and PTSD represents a priority for the field of traumatology. This is, in part, because shame may impede the treatment and emotional processing of traumas in current gold standard exposure-based treatments.

Dedication

I dedicate this project to the female and male veterans I have had the privilege to work with, particularly in the Women's Trauma and STARR Programs at the Albuquerque VA. They are the reason I transitioned into psychology and remain passionate as I stand at the crest of my journey into life as a psychologist.

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Goodbye 30's, Hello PhD!

If education were a sport, a PhD would be an ultramarathon. In my case, one that took the bulk of my 30's. Obtaining a PhD is a test of endurance and tenacity. The challenge is to keep moving forward when your body and brain ache and are screaming for rest, until you get the endorphin rush at the finish line. Like any successful über-athlete (or über-nerd, in this case), I could not have reached the finish line without the help and support of many others along the way.

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While the experience of overwhelming fear is linked to the maintenance of posttraumatic stress disorder (PTSD), recent research suggests that other emotions, particularly shame, may also play a role in the maintenance of PTSD (Hathaway, Boals, & Banks, 2009; Leskela, Dieperink, & Thuras, 2002). This research is consistent with a basic assumption in the trauma literature that trauma survivors can experience shame around a number of trauma-related factors, including feeling ashamed of their dysregulated fear responses, which perpetuates PTSD avoidance and hyperarousal symptoms (e.g., Frankl, 1962; Herman, 1992). The primary goal of the current study is to experimentally test the assumption that trauma survivors are ashamed of their dysregulated fear responses by assessing if trauma survivors with high levels of PTSD symptoms experience shame after experiencing experimentally induced fear.

Emotional Responses to Trauma

The dominant theory of PTSD hypothesizes that PTSD is a result of dysregulated fear responding in reaction to exposure to events involving death, the threat of death, or physical harm. In this theory, the experience of the trauma is hypothesized to cause hypersensitivity to trauma-related cues and hyperactivation of fear-related memories (Foa & Kozak, 1986; Keane, Fairbank, Caddell, Zimering, & Bender, 1985). Over time these responses generalize to other stimuli, leading to hypersensitivity to a broad range of threat cues, physiological hyperarousal, and avoidance of stimuli associated with the trauma, which negates the opportunity for new learning (Foa & Riggs, 1993). Thus, fear responding is hypothesized to both cause and maintain PTSD (Foa & Rothbaum, 1998).

A growing body of research, however, suggests that other emotional responses to trauma exposure, like shame, are important contributors to PTSD symptom profiles (Friedman, Resick,

Bryant, & Brewin, 2011; La Bash & Papa, 2014). The need to understand the role of different emotions in the complex causal chains that may underlie PTSD has taken on heightened importance, since treatments developed to address unregulated fear responses may not be as effective for those who experience shame in particular (Brewin, Dalgleish, & Joseph, 1996; Joseph, Williams, & Yule, 1997). This issue is particularly critical given that approximately 8% or over 25 million Americans suffer from PTSD in their lifetime (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In addition, an estimated 17-21% of the 2.4 million men and women who have served in Iraq or Afghanistan suffer from PTSD (Hoge et al., 2004; Seal et al., 2009), with research supporting that shame is a particularly pernicious emotion for many of these individuals (e.g., Litz et al., 2009). Shame is also strongly associated with other populations of trauma survivors, most notably in survivors of interpersonal traumas (e.g., sexual assault, domestic violence, assault with a weapon; Andrews, Brewin, Stewart, Philpott, & Hejdenberg, 2009; Kubany et al., 1996; Leskela et al., 2002; Pineles, Street, & Koenen, 2006; Wong & Cook, 1992).

What is Shame?

Basic research on the phenomenology of shame suggests that it is a highly aversive negative emotion arising when a part of the self is thought to be corrupted by an irredeemable act or by a contaminating event that will lead to the eventual rejection by others[1] (Tangney & Dearing, 2002). A necessary precondition of the shame attribution-emotion link is that the defect must be attributed to global, stable, and internal causes. This differs from guilt that focuses, instead, on specific, situation-bound behaviors (M. Lewis, 1992; H. Lewis, 1971). While both shame and guilt are negative self-evaluative emotions, their differing attributional foci are hypothesized to have distinct functional implications. The focus of guilt on transient behaviors (vs. static aspects of the self) is hypothesized to motivate pro-social responses, aimed at making

amends for specific, time-bound transgressions (Tangney & Dearing, 2002). In shame, the attribution is that the commission of a socially unacceptable behavior is representative of a stable, trait-like morally unacceptable aspect of the self that the individual is powerless to change. This leads to internalized attributions regarding the locus of responsibility for the action and self-blame. It also leads to a sense that the self is weak, flawed, and inadequate. Evolutionary theory hypothesizes that nonverbal displays of shame developed to communicate an individual's awareness of their own failure, which subsequently can evoke forgiveness, inhibit attacks, reinforce social hierarchies, and promote social inclusion (Fessler, 2007; Keltner & Harker, 1998; Kemeny, Gruenewald, & Dickerson, 2004).

The highly aversive nature of shame-related distress often leads to excessive self-focus and an all-consuming need for the individual to protect core aspects of their identity from social threats. As such, they often have difficulty focusing on others and being empathetic. Instead, they focus on hiding their perceived defect from others, which can result in a range of behavioral responses (Leith & Baumeister, 1998; Tangney, 1994). While theoretical models can differ slightly, shame-related behaviors generally fall into several categories – avoidance, attacking one's self, and attacking others (e.g., Gilbert, 2000; H. Lewis, 1987; Nathanson, 1992; Tangney & Dearing, 2002).

Shame-based avoidance refers to emotional distancing or the minimization of the shaming event. For example, someone may claim that they do not care about the shame-inducing event (Nathanson, 1992), or they may make a derogatory joke aimed at another individual (H. Lewis, 1987). Individuals evidencing shame-based behaviors are not always aware of their shame (H. Lewis, 1971; Nathanson, 1992). Shame-related avoidance also results in efforts to hide from reminders of the event by attempting to not come into contact with shame-related

thoughts and feelings or their triggers. Some use alcohol or drugs to try to avoid internal triggers of shame-related distress (Dearing, Stuewig, & Tangney, 2005; Treeby & Bruno, 2012). Not surprisingly, shame-related avoidance often results in an individual physically removing themselves from the presence of others and refraining from going to places that may trigger experiences of shame (Gilbert, 2000; H. Lewis, 1987; Tangney, 1993). Yet, as Tangney and Dearing (2002) state, this method like others is typically not successful as no matter where they go "the shamed, withdrawn individual is still saddled with a loathsome self" (p. 92).

Shame-linked anger can be directed inward with self-attacking behavior. A common example of this behavior is self-condemning and remorseful thoughts (Fisher & Exline, 2006). The highly adverse nature of shame causes some to shift the focus of their hostility and blame outward, by attacking others, in an attempt to protect their sense of self. This form of externalized anger often results in hostile outbursts in which others are blamed for their perceived failure (H. Lewis, 1971; M. Lewis, 1992; Tangney & Dearing, 2002).

These shame-based behaviors are defenses used to minimize expected rejection and /or serve as emotion regulation techniques to reduce excessive emotional arousal activated by distressing reminders of the shame-inducing event. These behaviors are also attempts to regain a sense of control or agency (H. Lewis, 1987; C. Sedikides & Gregg, 2008; Tangney & Dearing, 2002). Yet, these strategies can backfire and serve instead to magnify experiences of shame (Nathanson, 1992). For example, an individual may externalize their anger and then experience additional shame over lashing out and hurting someone else, especially if the target of their anger is someone they care about deeply (e.g., spouse). This type of dynamic can become part of a shame-rage spiral (H. Lewis, 1971; Scheff, 1987), in which shame-based rage leads to behaviors that later trigger more shame, fueling further efforts to displace the shame-related distress. These

shame-driven behaviors can then become yet another shame trigger, provoking further maladaptive behavior, and so the cycle can keep spiraling downward. As such, it is easy to see how the use of these ineffective emotion regulation strategies can inadvertently exacerbate distress, which consumes limited resources and makes coping with stressors, particularly severe stressors such as a trauma, more difficult. Thus, ineffective emotion regulation strategies can serve as a vulnerability to posttrauma pathology, like PTSD.

Shame and PTSD

Social-cognitive models of PTSD provide a framework for understanding the potential relationship between shame and PTSD. Trauma survivors frequently make harsh, negative self-appraisals that often lead to self-blame for their experiences (Resick & Schnicke, 1992). These negative interpretations are thought to be a critical link between the experience of a potentially traumatic event (PTE) and the development and maintenance of PTSD (Ehlers & Clark, 2000), with some research suggesting that maladaptive cognitions predict PTSD symptom severity over and beyond established predictors of PTSD (Ehring et al., 2006, 2008). Moreover, these cognitions are often characterized by attributions that the event was a result of global, stable aspects of the self, including that they are inadequate, inferior, and/or powerless to affect one's environment. These attributions can confirm previously existing negative, global schematic self-representations (e.g., "I am worthless") or can result when one's response to a PTE is perceived to violate standards for probity (Lee, Scragg, & Turner, 2001). For example, during a trauma, a survivor may have behaved in way that they never expected (Lee et al., 2001). One such scenario may occur if a victim froze during a violent physical assault and later feels intense shame that they froze in fear and did not fight back to protect themselves and/or lost control of their bowels during the attack.

Survivors can also have judgments regarding their posttrauma behavior and symptomatology. For example, some individuals with PTSD judge themselves harshly, because they cannot control their reactions to the traumatic event. For instance, a survivor may have negative self-judgments about their explosive anger that developed after exposure to a trauma, which consequently causes them to lash out at their family and loved ones. In another scenario, a survivor of a car crash may be on edge and have self-judgments about the extreme startle reaction they have whenever they hear a siren or screeching tires. Individuals suffering from PTSD sometimes interpret their symptoms and associated behaviors as proof that something is fundamentally wrong with them, that they are going crazy, and that they are powerless to change it.

These types of trauma-related attributions closely mirror those associated with experiences of shame. Thus, after being the victim of an event or having morally ambiguous responses to an event, an individual may have a constant sense of threat, not from the danger found in the external world, but from the internally-focused danger that they are inadequate, inferior, and powerless (Ehlers & Clark, 2000). This can result in a constant sense of impending social rejection or stigmatization.

Interpersonal vs. non-interpersonal traumas. Feelings of self-blame and shame are especially frequent in survivors of interpersonal traumas (Frazier, 1990; Massad & Hulsey, 2006). Interpersonal traumas are those purposely perpetrated by one human against another (e.g., murder, a physical attack; Ozer, Best, Lipsey, & Weiss, 2003). This is opposed to non-interpersonal traumas that are not human caused (e.g., natural disaster, illness-related death) or human caused, but not purposely perpetrated (e.g., a car crash caused by failure to see a traffic sign; Ozer et al., 2003). High levels of shame are associated with a wide-range of interpersonal traumas, including child and adolescent sexual abuse survivors (De Francis, 1969; De Young,

1982) and sexual assault survivors (Feiring & Taska, 2005; Pitts & Schwartz, 1997; Ullman, 1996). A study by Vidal and Petrak (2007) found that 75% of their sample of female sexual assault survivors reported feeling ashamed after they were attacked. High levels of shame have also been associated with later PTSD symptom levels. For example, Feiring et al. (2002) assessed shame in a sample of child adolescent sexual abuse survivors shortly after the crime was reported and found shame to predict PTSD symptoms six months later. Uji et al. (2007) found that self-reported shame directly predicted levels of PTSD in a sample of female Japanese undergraduates who had unwanted sexual experiences, and that the contribution of shame in the prediction of PTSD was higher if the survivor knew her perpetrator. Given the high levels of shame associated with interpersonal traumas, some have suggested that shame, not fear, is often the dominant emotion in survivors of interpersonal violence (Paivio & Pascual-Leone, 2010). As such, this population may warrant special attention when examining the relationship between shame and PTSD.

Emotion regulation skill deficits. When feeling intense shame, fear, or other emotion, an individual's ability to regulate their experience can greatly impact their experience. For example, an individual who has learned techniques to tolerate or dampen distressing emotions will be able to respond to contextual factors more effectively than those who lack these skills. Emotion regulation skill deficits are not only linked to maladaptive shame-related behaviors, but also to PTSD symptoms (e.g., Rosenthal, Cheavens, Lynch, & Follette, 2006; Seligowski, Lee, Bardeen, & Orcutt, 2015). As such, the role that emotion regulation skill deficits impact the relationship between shame and PTSD may also warrant special attention.

Shame and PTSD-Related Behaviors

Behaviors associated with shame are reflected in symptoms found in each symptom cluster in the DSM-IV PTSD criteria (APA, 2000). For example, persistent re-experiencing (as described in Cluster B) can occur in the form of shame-related rumination (Cheung, Gilbert, & Irons, 2004; Gilbert, Cheung, Irons, & McEwan, 2005; Grabe, Hyde, & Lindberg, 2007; Orth, Berking, & Burkhardt, 2006). Rumination is proposed to be an important factor in maintaining PTSD symptoms (e.g., Ehlers & Clark, 2000; Joseph et al., 1997; Wells, 2000) and has been significantly correlated with PTSD symptom severity (Ehlers, Mayou, & Bryant, 1998; Ehring, Frank, & Ehlers, 2008; Michael, Halligan, Clark, & Ehlers, 2007). Rumination is hypothesized to be an avoidance strategy, used to avoid uncomfortable emotions and increase perceptions of control (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Yet, this behavior can trigger intrusive memories of the trauma and, while it is still an empirical question, it seems likely that intrusive memories could then trigger additional shame-related affect and thoughts, facilitating a cycle that contributes to the maintenance of PTSD symptoms (Speckens, Ehlers, Hackmann, Ruths, & Clark, 2007).

The avoidance and numbing symptoms described in Cluster C overlap almost directly on shame-based withdrawal responses. Since shamed individuals feel fundamentally flawed and fear negative judgment, they try to avoid thoughts, feelings, places, and people associated with the shame-related event. Like in PTSD, these efforts can make individuals appear markedly less interested in activities they previously enjoyed. Shame is also linked with decreased interactions with family, friends, and neighbors; an inability to ask others for help; and an inability to develop new social support networks (Menjıvar, 2000; Nelson, 2005; Scheff, 2003; Skeggs, 1997). Thus, it is not surprising that high-shame individuals can feel detached or estranged from others.

Finally, like in PTSD, self-destructive behaviors such as substance use and abuse are used to avoid shame-related triggers (Dearing et al., 2005; Meehan, O'Connor, Berry, & Weiss, 1996; O'Connor, Berry, Inaba, & Weiss, 1994; Tangney, Mashek, & Stuewig, 2007).

Shame is also linked to increased arousal (Matos & Pinto-Gouveia, 2009) and anger (Bennett, Sullivan, & Lewis, 2005; Harper & Arias, 2004; Harper, Austin, Cercone, & Arias, 2005), as seen in Cluster D. Shame-related self-evaluations can be so aversive that there is a pull to shift the blame and hostility outward (H. Lewis, 1971), which can lead to explosive and impulsive shame-based anger (Tangney & Dearing, 2002). Shame is also associated with trouble falling and staying asleep (Schmidt & Van der Linden, 2009) and anxious arousal (Speckens et al., 2007). Given that shame-related behaviors frequently mirror those of individuals suffering from PTSD, additional assessment is needed to determine if they are motivated by fear, as typically assumed in PTSD, or another emotion, like shame.

Empirical Research on the Relationships among Shame, Fear and PTSD

A growing interest in empirical examination of the relationship of shame with posttrauma symptomatology has resulted in a nascent literature on this topic, including studies demonstrating the association of shame and PTSD (e.g., Andrews et al., 2009; Harman & Lee, 2010; Johnson & Lubin, 2002; Leskela et al., 2002) and others supporting the role of shame as a predictor of PTSD symptoms (e.g., Andrews et al., 2009; Harman & Lee, 2010; Johnson & Lubin, 2002; Leskela et al., 2002). No published research, however, has specifically examined the role of shame and fear in the development or maintenance of PTSD, with the exception of three studies (i.e., Brewin, Andrews, & Rose, 2000; La Bash & Papa, 2013, 2014).

Brewin and colleagues (2000) assessed the relationships among shame, fear, anger at others, helplessness, and horror experienced within the first month of a trauma exposure and

subsequent PTSD six months later in a sample of 138 violent crime survivors. Shame was rated on a 4-point scale (1 = *little or none*, 2 = *some*, 3 = *moderate*, 4 = *marked*) by a clinical interviewer based on the participant's response to the following questions, "Do you feel ashamed about any aspect of the crime or your reactions to it? Can you describe how you feel? Do you feel like that often?" Since Brewin and colleagues were interested in the contribution of shame and anger to PTSD symptom development, they combined fear, helplessness, and horror into one variable. They then ran a logistic regression with PTSD diagnostic status (coded as present or not present) as the dependent variable and the three emotion variables simultaneously entered into the model as predictors. Their results indicated that shame, anger with others, and the combined fear, helplessness, and horror variable all significantly predicted PTSD diagnostic status at 6 months posttrauma, $\chi^2(2, N = 138) = 13.81$, $p < .001$. The individual contribution of each emotional variable was not reported, though the authors indicated that the smallest Wald's $\chi^2 = 3.96$, $p < .05$. Reporting the Wald's χ^2 of each emotion, or at least of each predictor variable, would help the reader evaluate the potency of each emotion in the development of PTSD.

In the second study, La Bash and Papa (2014) tested if self-reported peritraumatic shame mediated the relationship between two conceptually linked PTSD risk factors (i.e., experiencing an interpersonal vs. non-interpersonal reference trauma and number of previous PTEs experienced) and current levels of PTSD symptoms. In this study, a sample of 114 University of Nevada, Reno (UNR) students retrospectively recalled their experiences of shame and fear during DSM-IV criterion A traumatic stressors (APA, 2000) on a 7-point scale (1 = not at all to 7 = extremely) that they endorsed on a modified version of the Traumatic Life Events Questionnaire (Kubany et al., 2000). The traumatic experience that participants endorsed as currently causing the most distress served as their index trauma, which was coded as either

interpersonal or non-interpersonal. Path analysis was used to test a series of nested models assessing the indirect effects of the two risk factors on PTSD symptoms via peritraumatic shame, while controlling for the potential indirect effect of these risk factors via peritraumatic fear. The final structural model fit the data well (χ^2/df = .74, NFI = .99, PNFI = .30, RMSEA = 0, AIC = 26.23; Figure 1).

The model indicated that the number of previous PTEs experienced had a direct effect on current PTSD symptom levels, no association with fear, and a marginally significant indirect effect on PTSD symptoms via shame. The effects of reference trauma type on PTSD symptom levels were mediated by levels of both peritraumatic shame and fear in survivors who endorsed an interpersonal index trauma.

While these results, like those of Brewin and colleagues (2000) suggest that shame, in addition to fear, is an important contributor to PTSD symptoms, they also suggest that shame and fear may be separate, parallel processes in the ongoing experience of PTSD, at least as it relates to the interpersonal vs. non-interpersonal nature of an index trauma. This was not expected, since there is a large literature suggesting that trauma survivors experience shame as a secondary emotional response to unregulated fear in PTSD (Frankl, 1962; Herman, 1992; Leys, 2007). This literature has suggested that it is not uncommon for trauma survivors to experience shame after behaviors associated with their dysregulated fear responses are seen as evidence that they are "out of control" or "crazy" (e.g., exaggerated startle response, explosive temper).

In a third study by La Bash and Papa (2013), the relationships among state (i.e., current or in the present moment) shame, state fear, and PTSD symptoms were assessed. This study was conducted as part of a larger study that includes La Bash and Papa (2014), so the participants and study design for both La Bash and Papa studies are as described above. However, while La Bash

and Papa (2014) measured peritraumatic shame and fear by asking participants to recall how much shame and fear they felt during their index trauma, La Bash and Papa (2013) measured current experiences of shame and fear (i.e., state shame and fear). State shame was measured via the self-report shame subscale of the State Shame and Guilt Scale (SSGS; Marschall, Sanftner, & Tangney, 1994), and state fear were measured via the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988), which was indexed to assess current emotional state. Additionally, the anlysis controlled for current experiences of guilt measured with the guilt subscale of the SSGS, as well as any symptoms of depression measured via the depression subscale of the Depression, Anxiety, and Stress Scales (Lovibond & Lovibond, 1995).

Using a non-parametric bootstrapping method outlined by Preacher and Hayes (2008) to estimate the indirect effects of fear on PTSD symptoms via current experiences of shame, while controlling for guilt and depression, results indicated that the indirect path of fear on PTSD symptom levels via shame was significant (ab = 1.52, *C.I.* = .08, 3.42). Moreover, the direct relationship of fear to PTSD symptoms, which was previously significant, was no longer significant after controlling for the indirect path via shame. The omnibus test of the model was significant (R^2 = .42, $p < .01$; Figure 2). Thus, the results of this study support the premise that there might be a sequential relationship between shame and fear.

The results of this and the other two fore-mentioned studies provide support for the importance of shame in the processes that facilitate PTSD symptoms. Brewin and colleagues' (2000) study provides support for the predictive power of peritraumatic shame in the development of PTSD symptoms. La Bash and Papa (2014) highlighted the importance of the type of index trauma (interpersonal vs. non-interpersonal) in the relationship of peritraumatic shame and fear in the maintenance of PTSD symptoms. The path model suggested that, at least

in relationship to trauma type, peritraumatic shame and fear may operate in a parallel and orthogonal manner. La Bash and Papa (2013), suggested that there may be an interconnected and sequential relationship between day-to-day experiences of shame and fear in the maintenance of PTSD symptoms.

Each study has strengths and limitations. Brewin and colleagues' (2000) study was a landmark study in that it was the first to highlight the importance of peritraumatic shame in the development of PTSD symptoms, within the context of other emotional responses, including fear. A limitation of the study in understanding the dynamics of shame, fear, and PTSD is that experiences of fear were combined with experiences of helpless and horror in their analyses.

La Bash and Papa (2014) were the first to assess the relationship of peritraumatic shame and fear to two established PTSD risk factors in the maintenance of PTSD symptoms. A limitation of this study was the use of self-report retrospective data. Participants were asked to recall their memory of their emotional experience at the time of their index trauma. It is possible that their reports were influenced by their current emotional experience (Robinson & Clore, 2002), memory biases (Kihlstrom, Eich, Sandbrand, & Tobias, 2000; Thomas & Diener, 1990), or social desirability (Marlow & Crowne, 1961).

An advantage of the La Bash & Papa (2013) is the use of the SSGS. The development and validation of this measure is a reflection of the advances in the conceptual understandings and measurement of shame within the emotion literature. These advances are part of what has fueled the nascent research literature on shame and trauma. The SSGS asks respondents to endorse how much they are feeling each of number of phenomenological descriptions associated with shame (e.g. "I want to sink into the floor and disappear"). This type of measure is able to capture the construct of shame as defined by emotion researchers and does not rely on

participants' understanding of their negative self-judgmental emotions and associated attributional processes.

Another strength of the SSGS is that it measures current, in the moment feelings of shame. Historically, shame has been predominatly measured as a trait with measures such as the Test of Self-Conscious Affect (Tangney, Dearing, Wagner, & Gramzow, 2000). While it is important to be able to measure the propensity to feel shame in different situations, for the purposes of La Bash & Papa's (2013) study that focused on day-to-day experiences of shame and fear in relation to PTSD symtpoms, a state measure of shame was a better comparison to current symtoms and in the moment experience of fear. Thus, the use of the SSGS is a strength of the third study (La Bash & Papa, 2013).

A limitation of both La Bash and Papa (2014) and La Bash and Papa (2013) is the cross-sectional nature of the data. Since all of the data was collected at the same time point, it is difficult to identify the temorporal relationships among the variables. Thus, formal conclusions cannot be drawn regarding the directional or causal relationship between shame and fear, among those with high levels of PTSD symptoms.

The proposed dissertation project sought to forward the trauma literature by using the SSGS in an experimental paradigm to test if trauma survivors, especially those distressed by an interpersonal trauma, experience shame as a secondary emotion in response to day-to-day experiences of fear. Further understanding the dynamics between shame and fear in trauma survivors is important to advance our understanding of the nuanced and complex causal chains that may underlie PTSD.

Method

The objective of this study was to experimentally test if trauma survivors are ashamed of their dysregulated fear responses, which may perpetuate PTSD symptoms. Specifically, the study assessed if individuals with high levels of pre-existing PTSD symptoms experience state shame as a secondary emotion after exposure to a fear vs. neutral emotion prime, as compared to a trauma-exposed sample with low levels of PTSD symptoms. Next, it was tested if this relationship was magnified in those who endorsed experiencing an interpersonal vs. non-interpersonal index trauma. Finally, exploratory analyses assessed if emotion regulation skill deficits influence the relationship between shame and dysregulated fear responses. This project used a pre-post randomized between group design. Participants were randomized to either the fear or neutral emotion prime (the between-subject condition). As a manipulation check, pre- and postmanipulation reports of state fear were measured. Postmanipulation state shame served as the outcome measure. See Figure 3.

The study tested the following specific hypotheses:

1. Pre-existing PTSD symptoms will interact with a fear or neutral emotion prime to predict reported postmanipulation levels of state shame, such that individuals with higher levels of endorsed PTSD symptoms will report higher levels of state shame after the fear prime as compared to participants with low levels of PTSD or those exposed to the neutral prime. This hypothesis was assessed by testing the interaction of PTSD symptom levels by priming condition in predicting postmanipulation levels of shame.
2. Among those with higher levels of PTSD symptoms, the type of index trauma endorsed will interact with a fear or neutral emotion prime to predict reported postmanipulation levels of state shame, such that individuals who endorse an interpersonal index trauma

will report higher levels of state shame after the fear prime as compared to participants who endorse an non-interpersonal index trauma or those exposed to the neutral prime. This hypothesis was assessed by testing a 3-way interaction of PTSD symptom levels by trauma type (i.e., interpersonal vs. non-interpersonal) by priming condition (i.e., fear vs. neutral emotion prime) in predicting postmanipulation levels of shame.

In addition, exploratory analyses were conducted to assess if emotion regulation skill deficits influenced the relationship between a fear or neutral emotion prime with PTSD symptom levels to predict endorsed postmanipulation levels of state shame. First, this relationship was explored looking at general emotion regulation skill deficits, and then it was assessed with a focus on the specific emotion regulation skill deficit of nonacceptance of emotional responses, since this deficit relates to the premise of the primary hypotheses that individuals with high levels of PTSD symptoms are ashamed of, thus unaccepting of, their dysregulated fear responses. Given the dearth of research in this area, no specific hypotheses were made.

Participants and Recruitment

Participants ($N = 178$) were UNR students who were at least 18 years old, fluent in English, and experienced at least one PTE as measured by the Traumatic Life Events Questionnaire (Kubany et al., 2000). Following IRB approval, participants were recruited from psychology courses in exchange for extra credit in their course or their choice of either a $15 Amazon.com or Walmart gift card.

Study Procedure

Pre-manipulation. Screenings for the study were conducted in English online via a set script that provide a study overview and assessed participants' eligibility (i.e., 18 or older, fluent in written English, and have experienced at least one PTE). Participants, who met criteria, were

invited to meet with a study staff member to learn more about the study. During this one-on-one interview, the experimenter confirmed the participant met the study inclusion criteria and also reviewed in detail the informed consent form with the participant. If the participant consented to take part in the study, data regarding the individual's trauma history, PTSD and depression symptoms, and emotion regulation skill deficits were collected via self-report online questionnaires. See Figure 4.

Experimental manipulation. Participants were randomized to receive either the experimental or control treatment. Prior to the experimental manipulation, participants completed pencil-and-paper self-report measure of subjective emotionality that consisted of the fear subscale of the PANAS-Expanded Version (PANAS-X; Watson & Clark, 1994) and the Positive and Negative Affect Scale (PANAS; Watson et al., 1988) that was modified to include an embarrassment item.

The participants in the experimental condition received a fear emotion prime via a three minute film clip from *The Blair Witch Project* (Sánchez, Myrick, Cowie, & Hale, 1999). This film scene was chosen to evoke anticipation of impending death by an assailant and final confrontation with the source of the threat. Film clips used as a fear prime often produce a blend of emotions (e.g., Rottenberg, Ray, & Gross, 2007). *The Blair Witch Project* clip was chosen because, compared to scenes from the frequently used films *The Shining* and *Silence of the Lambs* (Gross & Levenson, 1995; Hewig et al., 2005), it produces a high fear rating and induces the lowest levels of disgust and anger (Schaefer, Nils, Sanchez, & Philippot, 2010). The film clip has also successfully worked as a fear prime in other laboratory-based studies (e.g., Bagneux, Bollon, & Dantzer, 2012; Droit-Volet, Fayolle, & Gil, 2011). Those in the control condition received a neutral emotion prime via a three minute clip from the film *Alaska's Wild Denali,*

which displays scenic nature views with music and narration about Denali National Park. This film has been empirically validated in multiple studies (Gross & Levenson, 1995; Kreibig, Wilhelm, Roth, & Gross, 2007) and is frequently used (Ellard, Farchione, & Barlow, 2012; Rottenberg, Ray, & Gross, 2007; Salas, Radovic, & Turnbull, 2012). The experimenter provided viewing instructions to the participants and left the room while the participants watched their respective film clips.

Postmanipulation. After the film clip finished, the participants immediately completed the same paper and pencil measures that were previously completed (i.e., the, fear subscale of the PANAS-X and modified PANAS) as well as the SSGS. The experimenter then asked the participants about their experience in the study and provided the participants with the option of receiving SONA credit or a $15 Amazon.com or Walmart gift card, as partial reimbursement for their travel costs and time.

Assessment Measures

Outcome measure. The outcome variable for all analyses is postmanipulation state shame. Postmanipulation state shame was examined with the 5-item shame subscale of the State Shame and Guilt Scale (SSGS; Marschall et al., 1994) that uses a 5-point scale to assess state feelings of shame by asking how much an individual is feeling each of the phenomenological descriptions presented (1 = not feeling this way at all to 5 = feeling this way very strongly). Shame items include “I feel humiliated, disgraced” and “I want to sink into the floor and disappear.” The shame scale demonstrated a good internal consistency in the current study ($\alpha = .78$).

With this same measure we also use the guilt subscale to measure postmanipulation state guilt. As in the shame subscale, the guilt subscale is a 5-item measure with a 5-point response

scale to assess state (i.e., in the moment) feelings of guilt by asking how much an individual is feeling each of the phenomenological descriptions presented (1 = not feeling this way at all to 5 = feeling this way very strongly). Guilt items include "I cannot stop thinking about something bad I have done" and "I feel like apologizing, confessing." This scale demonstrated strong internal consistency ($\alpha = .86$).

To reduce concerns of multicollinearity, we computed a guilt-free shame variable by regressing the shame subscale against the guilt subscale and saving the standardized residual scores. This procedure removes shared variance and allows for a "pure" measure of shame (see Stuewig, Tangney, Heigel, Harty, & McCloskey, 2010) and has been used in other studies (e.g., Orth, Robins, & Soto, 2010; Robinaugh & McNally, 2010). For the remainder of the article, we refer to post-emotion prime guilt-free state shame simply as postmanipulation shame.

Predictor measures. In both Hypothesis 1 and 2 as well as in the exploratory analysis, PTSD symptom level and the fear vs. neutral emotion prime (i.e., the study condition) serve as predictor variables. In Hypothesis 2, the interpersonal vs. non-interpersonal nature of the index trauma also serves as a predictor. Finally, in the exploratory analyses, general emotion regulation skill deficits and then the specific deficit of nonacceptance of emotional responses serve as predictor variables.

***PTSD symptom severity*.** PTSD symptom severity level was assessed with the Posttraumatic Stress Disorder Checklist- Specific Version (PCL-S; Weathers, Huska, & Keane, 1991; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL-S is a measure of PTSD symptomatology and severity that asks users to respond to 17 items with a specific index trauma in mind. The 17 items map directly onto the DSM-IV PTSD symptom criteria, querying about Criterion B (re-experiencing), Criterion C (avoidance/numbing), and Criterion D (arousal)

symptoms, with respondents indicating on a 5-point scale how much the symptoms have bothered them in the last month (1 = *not at all* to 5 = *extremely*). A total score was calculated by summing all the items. The PCL-S demonstrated strong internal consistency in the study sample (α =.92).

Study condition. In the analyses, the control condition that received the neutral emotion prime was used as the reference group and coded 0, while the experimental condition that received the fear emotion prime was coded 1.

Interpersonal vs. non-interpersonal index trauma. To determine the index trauma, the participants first completed the Traumatic Life Events Questionnaire (Kubany et al., 2000), which assessed exposure to 22 types of PTEs. The PTE endorsed as currently most distressing served as the participant's index trauma. Interpersonal traumas were defined as human-caused traumatic events that were purposely perpetrated (e.g., physical or sexual assault; Ozer et al., 2003), while non-interpersonal traumas did not involve intentional perpetration by another human (e.g., natural disaster, an illness-related death).

Based on these criteria, the following events were coded as interpersonal index traumas: sexual assault, childhood sexual or physical abuse, witnessing or experiencing a physical assault, domestic violence, being stalked, and the loss of a loved one due to murder. The following were coded as non-interpersonal: motor vehicle or other kind of accident, a natural disaster, experiencing a life-threatening illness, and the loss of a loved one due to illness, accident, or suicide. Two individuals marked "other" as their index trauma type. In these two cases, the text description of these events were examined. One involved a conflict with another individual, so it was coded as interpersonal. The other involved a sudden, unexpected death due to illness, so was

coded as non-interpersonal. In the statistical analyses, non-interpersonal index traumas were used as the reference group and coded 0, while interpersonal index traumas were coded 1.

***Emotion regulation skills deficits*.** Emotion regulation skill deficits were measured with the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item measure that uses a 5-point scale to assess multiple aspects of trait emotion dysregulation. Example items include "When I'm upset, I lose control over my behaviors" and "I have difficulty making sense out of my feelings." Higher scores correspond to greater skill deficits. The measure demonstrated strong internal consistency (α = .94). The DERS includes multiple subscales including the nonacceptance of emotional responses subscale, which was of particular interest for the current study. This subscale is comprised of 6 items. Examples include "When I am upset, I become angry with myself for feeling that way" and "When I am upset, I feel like I am weak." The measure subscale also demonstrated strong internal consistency (α = .90).

Other measures. In the analyses, the following were controlled for: pre-manipulation state shame, guilt, and embarrassment. Finally, general positive and negative affect and state fear were measured pre-and post-emotion prime as a manipulation check.

Pre-manipulation state shame, guilt, and embarrassment. Pre-manipulation state shame and guilt were measured with the item *ashamed* and *guilty*, respectively, on the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). The PANAS is 20-item measure that uses a 5-point scale to assess in the moment (i.e., state) mood by presenting adjectives that are endorsed on a 5-point scale (1 = *feeling that way very slightly or not at all* to 5 = *extremely feeling that way*). The item *blushing* was used to measure embarrassment, since the item *embarrassed* was erroneously not included in the measure, and research supports that the

behavior of blushing is unique to the emotion of embarrassment (e.g., Keltner & Dacher, 1996; Shearn, Bergman, Hill, Abel, & Hinds, 1990).

Depression. Depression was measured using the depression subscale of the Depression, Anxiety, and Stress Scales, 21-Item Version (Lovibond & Lovibond, 1995). The depression subscale is comprised of 7 items that use a 4-point scale (0 = *does not apply to me at all* to 3 = *applies to me very much or most of the time*) to assess features uniquely associated with depression. The DASS depression scale demonstrated strong internal consistency in the current study (α =.90).

Fear. Both pre- and postmanipulation state fear was assessed with the fear subscale of the Positive and Negative Affect Scale- Expanded Form (PANAS-X; Watson & Clark, 1994), a self-report measure that is indexed to assesses in the moment mood by presenting six adjectives (i.e., shaky, frightened, scared, nervous, jittery, and afraid) that are endorsed on a 5-point scale (1 = *feeling that way very slightly or not at all* to 5 = *extremely feeling that way*). The scale demonstrated strong internal consistency in the current study (α =.93).

General positive and negative affect. Both pre- and postmanipulation positive and negative affect was measured with the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). As previously described, the PANAS is a 20-item measure that uses a 5-point scale to assess in the moment feelings of negative and positive affect. Each item is an adjective that describes specific feelings and moods. Participants estimate how much they are feeling each at that moment (1 = *feeling that way very slightly or not at all* to 5 = *extremely feeling that way*). Each of the general dimensions on the PANAS (i.e., negative affect and positive affect) consists of 10 items. Negative affect items include *distressed* and *irritable*. Positive affect items include *inspired* and *strong* (Watson & Clark, 1991, 1992). The full PANAS scale had good internal

validity (α = .81). Both the negative and positive affect subscales demonstrated strong reliability (α = .90 and α = .88, respectively).

Demographics questionnaire. A demographics questionnaire was administered to gather participant information, such as gender, age, and ethnicity.

Data Analysis Preparation and Plan

Data preparation. Prior to running analyses, the data was reviewed to ensure that all cases met the study inclusion criteria. Additionally, all variables were examined for data entry accuracy (e.g., possible value range) and missing values.

To ensure that all of the cases included in the final dataset met the study inclusion criteria, the experimenter enrollment log, in which experimenters included comments about their experience running each participant, and the minor deviations log were reviewed. When warranted, the relevant experimenter was contacted to discuss the participant in question. This review led to the removal of 10 cases from the dataset. Five cases were removed due to technical errors (e.g., there was no sound during the emotion prime film clip or the clip froze). Three cases were removed, because the participant was not fluent in English, as evidenced by asking for words on the self-report measures to be defined or asking for the instructions to be rephrased in simpler language. One case was removed, because the individual had already participated in the study at an earlier time. A final case was removed due to the experimenter breaking with protocol and interacting with a participant with strong negative affect, instead of maintaining a neutral stance.

The review of the above-mentioned logs also indicated that one participant had noted in her postmanipulation interview that she had accidentally put the wrong trauma as her index trauma. As such, it was hand corrected in the dataset. All text written by participants as part of a

question response was also reviewed. During this review, it was found that one individual, who had marked *other* when asked to identify his race, wrote in the text box, "Race is a figment of human imagination". This individual's response to the race question was treated as missing.

Next, all of the study variables were reviewed to ensure that all of their values fell within their expected ranges. One individual indicated that his index trauma occurred when he was 80 years old, however a look at his demographic information indicated that the participant was only 20 years old. As such, this participant's response to the question that asked his age at the time of his index trauma was deleted, again so it would appear as missing data. Finally, a number of values on the PANAS-X fear subscale and the modified PANAS fell outside of the 5-point scale provided. The items in the dataset were compared to the original paper-and-pencil measures from which they were entered. This allowed for two cases, in which the values were erroneously entered, to be corrected. There were three other cases in which the participant had not followed the instructions and had used values outside of the defined range throughout their responses to these measures. Since it was unclear what the response values actually reflected, all of their responses on the PANAS-X fear subscale and modified PANAS were deleted.

The review of the data also found that there were six cases with missing data in the PCL-S. In five of the cases, there was only one item missing from a specific symptom cluster represented on the PCL-S. In one case the individual was missing one item out of the seven questions representing Cluster C avoidance symptoms. In the remaining four cases, there was one item missing from the five questions representing Cluster D hyperarousal symptoms. In these five cases, in which the participant had endorsed at least 80% of the items representing a specific symptom cluster, the missing item was replaced with the mean of the other item scores endorsed by the participant on the relevant symptom cluster.

Data Analytic Strategy

Descriptives. The descriptives and frequency functions of SPSS 22 were used to review sample characteristics, index trauma characteristics, as well as other descriptives of study variables.

Correlations. Pearson product-moment correlations were run when both variables were continuous; point biserial correlations when one variable was dichotomous and the other was continuous; and phi coefficients when both variables were dichotomous. For these and all other statistical analyses, an alpha level of .05 indicates statistical significance.

Randomization check. To assess the success of the randomization process, a cross-tabulation was run evaluating the relationship between study condition (control vs. experimental) and high and low PTSD symptom levels, based on a median split. A second cross-tabulation was run assessing the relationship between type of index trauma endorsed (interpersonal vs. non-interpersonal) and high and low PTSD symptom levels, again based on a median split.

Manipulation check. To determine if the emotion prime worked as intended (i.e., primed fear in the experimental condition, primed or maintained a neutral emotional state in the control condition), both independent-samples and paired samples t-tests were run. First, independent samples t-tests were conducted to compare levels of endorsed pre-manipulation fear, positive affect, and negative affect of those who received the control vs. experimental emotion prime. The procedure was then repeated comparing the two groups' endorsed postmanipulation affect. Next, paired-samples t-tests were run to compare endorsed levels of pre- to postmanipulation fear, positive affect, and negative affect among those in the control condition. Finally, the procedure was repeated to compare the endorsed levels of pre- to postmanipulation affect among those in the experimental condition.

Hypothesis testing. Hierarchical linear regression analyses were run to test the two primary hypotheses and to conduct the exploratory analyses. In each of the models, the covariates of pre-manipulation shame, guilt, and embarrassment were entered into Step 1, the main effects into Step 2, the 2-way interaction into Step 3, and if relevant the 3-way interaction into Step 4. As recommended by Aiken and West (1991), all continuous predictor variables were centered. The covariates were also centered to facilitate easier interpretation (i.e., pre-manipulation shame, guilt, and embarrassment).

Each model was examined to ensure it met all the assumptions of linear regression and appropriate steps were taken to rectify any violations of these assumptions, as described below. The first assumption tested was the normality of the Y variable. The outcome measure for all of the analyses was the "pure" shame measure described above that was calculated from the SSGS. An initial assessment of this measure indicated the measure was not normally distributed, with skew and kurtosis beyond that of the normally accepted values of |2|. However, after three sweeps and the removal of nine outliers that had standardized residuals that fell beyond |3| (Tabachnick & Fidell, 2006), the dependent variable was found to have a normal distribution.

Additionally, each model was tested to ensure: (1) the homogeneity of residual variance, (2) the independence of residuals; and (3) the linear functional form, which were all tested by assessing the scatter plot of the standardized residuals with the standardized predicted values; (4) the normality of the residuals of the errors, which were assessed by evaluating a QQ-plot of the observed vs. expected standardized residuals; (5) the absence of multicollinearity and suppression effects, which were evaluated by assessing the correlation matrix, ensuring that no tolerance values were <.10 and no VIF values were >5, and the Condition Index < 30 and the variance on two separate variables < .50; and finally (6) the absence of outlier distortion. To

avoid outlier distortion, several strategies were employed and considered within the context of each other before the final removal of a case. These included the visual inspection of the scatterplot of the residuals and predicted values, as well as assessing if a case had a standardized residual value outside of |3| and/or displayed undue influence as indicated by a Cook's distance > .30, and Mahalanobis distance of > 30. Finally, in an effort to retain as many cases as possible, prior to the removal of an influential case, the model was tested with and without the case to confirm its undue influence and the necessity to remove the case. The procedure to assess for outlier distortion was completed in three sweeps, as recommended by Tabachnick and Fidell (2006).

Simple slope analyses and t-tests were used to interpret the significant interactions (Aiken & West, 1991; Preacher, Curran, & Bauer, 2006). Finally, Cohen's f^2 were calculated to determine the effect size of the significant interactions (Aiken & West, 1991; Cohen, 1988).

Power analysis. During the study development, an a priori power analysis was conducted using the linear regression for Hypothesis 2, since it contains the most predictors. The power analysis was based on a linear multiple regression model with R^2 deviation from zero, with 11 predictors (i.e., four control variables, three main effects, three lower level interactions, one 3-way interaction), an alpha of .05, power of . 95, and a medium effect size as measured by a Cohen's $f^2 = .15$. Based on this power calculation using G* Power (Faul et al., 2007), a study sample of 178 provided a power of .95 to test the study hypotheses. A second calculation with the same parameters determined a sample of 135 would provide a power of .85 to test the study hypotheses.

Results

Descriptives

Of the 178 participants, 70.2% were female. The ages of the 177 participants who disclosed their age ranged from 18 to 53 years old, with a mean age of 22.75 (*SD* = 7.19) years old. Participants were primarily Caucasian (55.1%), followed by Asian (14.6%), mixed race (7.9%), and African-American (6.2%). Six participants (3.4%) declined to disclose their race/ethnicity. Participant demographics are displayed in Table 1.

When identifying the trauma that is currently most distressing (i.e., their index trauma), 60.1% endorsing a non-interpersonal index trauma and 38.8% of the sample endorsing an interpersonal index trauma. Two individuals (1.1%) did not identify an index trauma. Consistent with other studies of young adults (Koenen et al., 2008), the most frequently endorsed type of index trauma was the traumatic loss of a loved one (36.5%), followed by childhood sexual abuse (12.4%), experiencing or a loved one experiencing a life threatening illness (10.1%), and a motor vehicle accident (9%). Among those who endorsed an index trauma, the mean time since the trauma was 7.1 years (*SD* = 6.73), with over half of the sample (54.3%) endorsing a reference trauma that occurred within five years of the study. Index trauma characteristics are displayed in Table 2.

The means and standard deviations for all study variables are displayed in Table 3, and the correlation coefficients for all study variables are displayed in Table 4. The mean levels of post-emotion prime state shame and guilt were *M* = 6.98, *SD* = 3.30, and *M* = 7.54, *SD* = 3.92, respectively, with a range of 5-22, which are similar to previous studies (La Bash & Papa, 2014). The PTSD score mean was 34.76, *SD* = 14.26, with scores ranging from 17-76. Forty participants (21.6%) endorsed a score of 44 or higher, indicating potential PTSD diagnosis

(Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

The cross tabulation of study condition (control vs. experimental) and PTSD symptom levels (high vs. low, based on a median split) demonstrated the overall success of the randomization process. As seen in Figure 5, there were nearly equal sample sizes in the four groups except for the overrepresentation of those with low levels of PTSD symptoms in the experimental condition, though the difference in groups did not reach statistical significance, $\chi^2(1, N = 178) = 1.12, p > .05$.

As seen in Figure 6, the distribution of those who endorsed index trauma type (interpersonal vs. non-interpersonal) with PTSD symptom levels (high vs. low, based on a median split) was not balanced, $\chi^2(1, N = 176) = 12.60, p < .001$. There was a disproportionally high number of participants with low PTSD symptoms who endorsed a non-interpersonal index trauma compared to the other three quadrants of participants.

Effectiveness of the Emotion Prime

Results suggested that the fear emotion prime was effective and that the neutral emotion prime did not impact levels of positive affect, but did reduce levels of negative affect. When assessing the pre-manipulation scores, the experimental group did not differ from the control group in self-reported fear, $t(158) = .94, p > .05$, negative affect, $t(157) = .87, p > .05$, or positive affect, $t(158) = -1.61, p > .05$. When assessing the postmanipulation scores, the experimental group reported more fear, $t(100.33) = 9.39, p < .001$, more negative affect, $t(121.44) = 8.58, p < .001$, and less positive affect than those in the control condition, $t(131.26) = -2.30, p < .05$.

Within the experimental group, from pre- to postmanipulation, there was an increase in fear, $t(87) = -7.86, p < .001$, and negative affect, $t(86) = -6.11, p < .001$, with no change in

positive affect, $t(86) = 1.26$, $p > .05$. Within the control group, from pre- to postmanipulation, there was no change in positive affect, $t(71) = -.91$, $p > .05$, but there was a decrease in fear, $t(71) = 5.96$, $p < .001$, and negative affect, $t(71) = 6.75$, $p < .001$. Means and standard deviations of all of the pre- and post-emotion prime measures are presented in Table 3.

Primary Analyses

Hypothesis 1. *Do pre-existing PTSD symptoms interact with a fear or neutral emotion prime to predict reported postmanipulation levels of state shame?*

The primary hypothesis was that individuals with higher levels of endorsed PTSD symptoms will report higher levels of state shame after the fear prime as compared to participants with low levels of PTSD or those exposed to the neutral prime, when controlling for pre-emotion prime levels of shame, guilt, embarrassment, and depression symptoms. This hypothesis was tested with the following regression equation:

$$\text{Post-Shame} = b_0 + b_1\text{*Pre-Shame} + b_2\text{*Pre-Guilt} + b_3\text{*Embarrassment} + b_4\text{*Depression} + b_5\text{*Condition} + b_6\text{*PTSD level} + b_7\text{*Condition x PTSD level.}$$

A hierarchical linear regression analysis was run with post-emotion prime shame as the outcome variable. Pre-emotion prime shame, guilt, and embarrassment levels were entered into Step 1 to control for the effects of these covariates. Study condition and PTSD symptom level were entered into Step 2. As described earlier, the control condition was used as the reference group and coded 0, while the experimental condition was coded 1. Finally, in Step 3, the variable of interest – the study condition by PTSD symptom level interaction term – was entered. A review of the model to ensure it met the required statistical assumptions resulted in the removal of five outliers. See Table 5 for full results of the regression model.

In Step 3, $R^2 = .21$, $p < .001$, all the variables (i.e., pre-shame, pre-guilt, depression, study condition, and condition x PTSD interaction) significantly predicted post-emotion prime shame, except for embarrassment, $b = .45$, $p > .05$, and PTSD symptom level, which was only marginally significant, $b = -.03$, $p = .06$.

Since the condition x PTSD interaction term was significant, $\Delta R^2 = .04$, $p = .01$, $f^2 = .04$ (Aiken & West, 1991; Cohen, 1988), simple slope analysis was used to interpret the interaction (Aiken & West, 1991). Post hoc analyses of the simple slopes indicated that the slope for those with a high levels of PTSD symptoms (i.e., +1*SD*) significantly differed from zero ($t = 3.30$, $p < .001$), while the slope for those with low PTSD symptoms (-1*SD*) did not significantly differ from zero ($t = -0.25$, $p > .05$).

Follow up t-tests found that those in the experimental condition with high PTSD symptoms reported significantly higher levels of postmanipulation shame, $M = .74$, $SD = 2.01$, than those with low PTSD symptom levels, $M = -.40$, $SD = 1.34$; $t(45.20) = -2.82$, $p = .007$. There were not significant differences in postmanipulation shame among those with high PTSD symptoms who were in the control condition, $M = -.53$, $SD = 1.66$, vs. those with low PTSD symptoms, $M = -.45$, $SD = 1.22$; $t(70) = .25$, $p > .05$. Together, these results indicate that when those with high levels of PTSD symptoms are exposed to a fear emotion prime their shame increases, while those with low PTSD symptoms do not have an increase in shame when exposed to a fear prime. See Figure 7.

Hypothesis 2. *Is the interaction of pre-existing PTSD symptoms and study condition (fear vs. neutral emotion prime) different in those who endorsed an interpersonal index trauma vs. those who endorsed a non-interpersonal index trauma?*

To test Hypothesis 2, the 3-way interaction of experimental condition with PTSD symptom level by index trauma type was tested with the following regression equation:

Post-Shame = b_0 + b_1*Pre-Shame + b_2*Pre-Guilt + b_3*Embarrassment + b_4*Depression + b_5*Condition + b_6*PTSD level + b_7* Index Trauma Type + b_8*Condition x PTSD level + b_9*Condition x Index Trauma Type + b_{10}* PTSD level x Index Trauma Type + b_{11}*Condition x PTSD level x Index Trauma Type.

The relevant covariates were entered into Step 1, the main effects (i.e., study condition, PTSD symptom level, index trauma type) into Step 2, all the lower level interactions into Step 3, and the 3-way interaction of study condition x PTSD symptoms x index trauma type into Step 4. Again, the control condition was used as the reference group and coded 0, while the experimental condition was coded 1. As for the type of index trauma endorsed, non-interpersonal index traumas were used as the reference group and coded 0, while interpersonal index traumas were coded 1. A review of the regression model resulted in the removal of seven outliers.

The omnibus test of the model was significant, $F(11, 136) = 7.48$, $p < .001$, and the condition x PTSD symptoms x index trauma type interaction term was significant, $\Delta R^2 = .02$, $p = .02$, $f^2 = .04$ (Aiken & West, 1991; Cohen, 1988; Table 6).

Post hoc analyses of the simple slopes indicated that the slope for those who endorsed an interpersonal index trauma with high PTSD symptoms (i.e., +1*SD*) significantly differed from zero ($t = 3.90$, $p < .001$) and the slope for those who endorsed an interpersonal index trauma with low PTSD symptoms (i.e., -1*SD*) approached significance ($t = 1.83$, $p = .07$; Figure 8a). The

slope for those with high PTSD symptoms who reported a non-interpersonal index trauma also significantly differed from zero (t = -3.50, p < .001), but the slope for those with low PTSD symptoms who reported a non-interpersonal index trauma did not significantly differ from zero (t = -0.45, p > .05; Figure 8b).

Follow up t-tests found that among those who endorsed an interpersonal index trauma, those with high PTSD symptoms reported marginally significantly higher levels of postmanipulation shame after the fear emotion prime, M = 1.03, SD = 1.87, than those with low PTSD symptom levels, M = -.09, SD = 1.74; t(36) = -1.90, p = .07. In the control condition, there was not a significant difference in postmanipulation shame between those with high PTSD symptoms who endorsed an interpersonal index trauma, M = -.36, SD = 1.42, vs. those with low PTSD symptoms, M = -.80, SD = .87; t(22) = -.79, p > .05.

When assessing those who endorsed a non-interpersonal index trauma, those with high PTSD symptoms unexpectedly reported significantly *lower* levels of postmanipulation shame after the fear emotion prime, M = -1.89, SD = 1.77, than those with low PTSD symptom levels, M = -.54, SD = 1.11; t(45) = 2.90, p = .006. There were no significant differences reported by those in the control condition with high vs. low PTSD symptoms, M = -.42, SD = 1.56 and M = -.53, SD = .88, respectively; t(43) = -.30, p > .05.While unexpected, it is possible that the high PTSD individuals with non-interpersonal index traumas experienced significantly less shame, in part, because shame is just not as salient in this group. As such, for those in the experimental condition, the strength of their fear reaction drowned out the experience of shame, but not the control condition. This contrasts people with interpersonal index traumas where both high and low PTSD groups demonstrated some level of increase in shame, indicating that interpersonal traumas cue shame in addition to fear. Indeed, among those with high levels of PTSD, those with

interpersonal index trauma reported similar levels of postmanipulation fear as those who reported a non-interpersonal index trauma in the experimental condition, M = 15.24, SD = 6.73 and M = 12.0, SD = 6.72, respectively; $t(29) = -1.25$, $p > .05$. However, when comparing those with high vs. low PTSD symptoms who received the experimental treatment, it was found that those with high levels PTSD symptoms reported significantly more postmanipulation fear, M = 14.25, SD = 6.69, than those with low levels of PTSD symptoms, M = 11.20, SD = 4.79; $t(50.03) = -2.25$, p = .03. The only difference between these groups is the nature of the trauma, again suggesting that fear cues shame in the interpersonal trauma group, but may drown out shame in the non-interpersonal group, though at this time this is speculative.

Exploratory Analyses

Exploratory analysis 1. *Is the interaction of pre-existing PTSD symptoms and study condition (fear vs. neutral emotion prime) moderated by emotion regulation skill deficits?*

In this study, exploratory analyses were conducted with no specific predictions to test if general emotion regulation skill deficits interact with the emotion prime to predict reported levels of postmanipulation state shame, among those with high levels of PTSD symptoms. To explore a possible 3-way interaction of experimental condition with PTSD symptom level by general emotion regulation skill deficits, the following regression equation was tested:

$$\text{Post-Shame} = b_0 + b_1\text{*Pre-Shame} + b_2\text{*Pre-Guilt} + b_3\text{*Embarrassment} + b_4\text{*Depression} + b_5\text{*Condition} + b_6\text{*PTSD level} + b_7\text{*Emotion Regulation Deficits} + b_8\text{*Condition x PTSD level} + b_9\text{*Condition x Emotion Regulation Deficits} + b_{10}\text{* PTSD level x Emotion Regulation Deficits} + b_{11}\text{*Condition x PTSD level x Emotion Regulation Deficits.}$$

The relevant covariates were entered into Step 1, the main effects (i.e., study condition, PTSD symptom level, emotion regulation skill deficits) into Step 2, all the lower level interactions into Step 3, and the 3-way interaction of condition x PTSD symptoms x emotion regulation skill deficits into Step 4. As before, the control condition was used as the reference group and coded 0, and the experimental condition was coded 1. A review of the regression model resulted in the removal of four outliers. The omnibus test for the model was significant, $F(11, 140) = 1.84$, $p = .05$. The R^2 change was not significant for the last 3 steps of the model. The only variable of interest that approached, but failed to reach, significance was the condition x emotion regulation skills deficit interaction term ($b = .02$, $p = .07$). See Table 7 for the full results.

As a follow up analysis, the study condition by emotion regulation skill deficits interaction in predicting postmanipulation shame was tested within a cleaner, simplified model that did not include PTSD or any PTSD interaction terms, since they did not contribute to the previous model. Specifically, the following regression equation was run:

$$\text{Post-Shame} = b_0 + b_1\text{*Pre-Shame} + b_2\text{*Pre-Guilt} + b_3\text{*Embarrassment} + b_4\text{*Depression} + b_5\text{*Condition} + b_6\text{*Emotion Regulation Deficits} + b_7\text{*Condition x Emotion Regulation Deficits}$$

The relevant covariates were entered into Step 1, the main effects (i.e., study condition, emotion regulation skill deficits) into Step 2, and the 2-way interaction of study condition x emotion regulation skill deficits into Step 3. Again, the control condition was used as the reference group and coded 0, while the experimental condition was coded 1. A review of the regression model resulted in the removal of six outliers. The omnibus test for the model was significant, $F(7, 142) = 4.76$, $p < .001$. Consistent with the results of the previous 3-way

interaction, the R^2 change of Step 3, in which the condition x emotion regulation skill deficits interaction term was entered, approached significance ($\Delta R^2 = .02$, $p = .06$; Table 8).

Simple slopes analyses for this interaction suggested that among those with a high level (+1*SD*) of general emotion regulation skill deficits, those who received the fear emotion prime may report significantly more post-emotion prime shame than those who received the neutral emotion prime ($t = 2.65$, $p = .01$). There were no differences in postmanipulation shame among those with low levels of deficits ($t = .09$, $p > .05$; Figure 9).

Exploratory analysis 2. *Is the interaction of pre-existing PTSD symptoms and study condition (fear vs. neutral emotion prime) moderated by the nonacceptance of emotional responses, a specific emotion regulation skill deficit?*

Given that the nonacceptance of emotional responses is a closely linked to the concepts underlying the primary hypotheses, an exploratory analysis was conducted to test if this specific emotion regulation skill deficit interacted with the emotion prime to predict reported levels of postmanipulation state shame, among those with high levels of PTSD symptoms. The 3-way interaction of experimental condition with PTSD symptom level by nonacceptance of emotional responses was tested using the following regression equation:

$$\text{Post-Shame} = b_0 + b_1\text{*Pre-Shame} + b_2\text{*Pre-Guilt} + b_3\text{*Embarrassment} + b_4\text{*Depression} + b_5\text{*Condition} + b_6\text{*PTSD level} + b_7\text{*Nonacceptance of Emotions} + b_8\text{*Condition x PTSD level} + b_9\text{*Condition x Nonacceptance of Emotions} + b_{10}\text{* PTSD level x Nonacceptance of Emotions} + b_{11}\text{*Condition x PTSD level x Nonacceptance of Emotions.}$$

The relevant covariates were entered into Step 1, the main effects (i.e., study condition, PTSD symptom level, nonacceptance of emotions) into Step 2, all the lower level interactions

into Step 3, and the 3-way interaction of condition x PTSD symptoms x nonacceptance of emotions into Step 4. The control condition was coded 0, and the experimental condition was coded 1. A review of the regression model resulted in the removal of seven outliers.

The omnibus test for the model was significant, $F(11, 137) = 2.38$, $p = .01$. However, like the model testing general emotion regulation skill deficits, the R^2 change was not significant for the last 3 steps of the model. Additionally, none of the variables that included the nonacceptance of emotional responses were significant predictors of postmanipulation shame. See Table 9 for the full results. In summary, the results of this regression model suggests that the nonacceptance of emotional responses does not impact the relationship of the study condition (control vs. experimental) with PTSD symptom levels in predicting postmanipulation shame.

Discussion

The purpose of this study was to explore the relationship between PTSD symptomatology, dysregulated fear, and experiences of shame, particularly as it relates to surviving a distressing interpersonal trauma and the potential role of emotion regulation skill deficits. A relationship between shame and fear in the day-to-day experience of PTSD symptoms was proposed, such that individuals with high levels of PTSD symptoms would experience state shame in addition to fear after exposure to a fear manipulation, particularly if they were currently most distressed about experiencing an interpersonal (vs. non-interpersonal) trauma. Exploratory analyses were also conducted to test if these relationships were impacted by emotion regulation skill deficits.

Day-To-Day Experiences of PTSD Symptomatology, Dysregulated Fear, and Shame

As predicted, when controlling for pre-emotion prime levels of shame, guilt, embarrassment, and depression symptoms, the fear emotion prime by PTSD symptom level

interaction significantly predicted postmanipulation state shame. This finding is consistent with the notion that shame may arise from negative self-appraisals tied to every day experiences of fear for those with higher levels of PTSD symptoms. Social-cognitive models of PTSD assert that harsh self-evaluations can arise as an individual seeks to make sense of a traumatic experience, including evaluations of their posttrauma emotional, cognitive, and behavioral responses (Ehlers & Clark, 2000). Experiences of dysregulated fear are a hallmark feature of PTSD and can be experienced as unpredictable and uncontrollable. As such, individuals with PTSD frequently judge experiences of intense fear and associated symptoms as a sign that they are weak or "going crazy" (Ehlers & Steil, 1995). This, in turn, may evoke new experiences of fear associated with concerns of social rejection, particularly since shame is hypothesized to negatively bias appraisals of ambiguous stimuli and is associated with heightened sensitivity to potential rejection (Claesson & Sohlberg, 2002; Gilbert, Pehl, & Allan, 1994).

It is possible that fear and shame have a reciprocal relationship, similar to that of the shame-rage spiral. In the shame-rage spiral, shame-based rage drives maladaptive coping responses that trigger additional shame, which results in more maladaptive behaviors, provoking additional shame. In the case of a fear-shame spiral, dysregulated fear results in harsh self-evaluations that trigger shame, which in turn provoke fear of social rejection. This fear results in coping responses such as avoidance, withdrawal, defensiveness, and anger that are maladaptive for relationships (Sippel & Marshall, 2011; Tangney, 1995). Problems in their relationships and the inability to develop new relationships is interpreted as proof that they are fundamentally defective, provoking additional shame, which in turn provokes additional fear of rejection, creating a cycle of fear and shame that results in the dynamic of a downward spiral. This may have important clinical implications since social support plays an important role in the recovery

or non-recovery from PTSD and other trauma-related pathology (Brewin, Andrews, & Valentine, 2000; Ullman, 1999).

The Role of Interpersonal Traumas

This study also looked at the role of experiencing distressing interpersonal traumas and their relationship with experiences of day-to-day PTSD symptoms, fear, and shame. Consistent with the study predictions, it was found that when controlling for pre-emotion prime levels of shame, guilt, embarrassment, and depression symptoms, those in the experimental condition with high PTSD symptoms who endorsed an interpersonal trauma as currently most distressing (i.e., their index trauma) reported significantly more shame after the fear emotion prime than those with low PTSD symptoms. Those in the control condition with high PTSD symptoms who endorsed an interpersonal index trauma report marginally significant higher levels of post-emotion prime shame than those with low PTSD symptoms who endorsed an interpersonal index trauma. The higher levels of postmanipulation shame in those with high PTSD symptoms who endorsed an interpersonal index trauma, while not significant in the control condition highlights that shame may be salient for anyone who has experienced an interpersonal trauma, regardless of levels of reported PTSD symptoms.

It is a fundamental human drive to form and maintain stable, healthy interpersonal relationships (Baumeister & Leary, 1995). From an evolutionary perspective these relationships are formed within a larger social order to allow for group cohesion and, thus, survival. Social Rank Theory describes patterns of social signals and behaviors that determine social hierarchy, including those associated with dominance and subordination (Gilbert, 1992; Price & Sloman, 1987). Social dominance can be exerted via nonverbal or verbal threatening display, because humans are highly cognizant of and sensitive to threatening social signals (Kalma, 1991).

Perpetration of a trauma on a victim could arguably be one of the strongest demonstrations of dominance, clearly signaling the powerlessness and low social status of the victim. This can evoke feelings of inferiority and shame in the victim. Indeed, research supports that trauma survivors view their posttrauma-self much more negatively than their pretrauma-self as well as viewing their posttrauma-self more negatively compared to others with similar experiences (Brown, Buckner, & Hirst, 2011).

Interestingly, among those randomized to the experimental condition, participants with high levels of PTSD symptoms who endorsed a non-interpersonal index trauma reported significantly lower levels of post-emotion prime shame than their counterparts in the control group. The significantly lower levels of shame may reflect the non-relevance of this emotion to non-interpersonal traumas, as demonstrated by the literature that consistently finds shame associated with interpersonal traumas and not associated with non-interpersonal traumas.

The Role of Emotion Regulation Skill Deficits

Exploratory analyses indicated that emotion regulation skill deficits did not impact the relationship of the fear emotion prime with PTSD symptom level to predict postmanipulation shame. This result was found not only when testing for general emotion regulation skill deficits, but also when assessing the specific deficit of nonacceptance of emotional responses. In this study, it was hypothesized that harsh negative self-criticism about fear responses may give rise to the emotion of shame in individuals with high levels of PTSD symptoms. That is, individuals with high PTSD symptoms may judge (i.e. not accept) their heightened fear responses, which in turn can facilitates experiences of shame. As such, these null results were unexpected, however it is possible that the null results for both general emotion regulation skill deficits and the nonacceptance of emotional responses are related to conceptual and measurement issues.

There are diverse approaches to conceptualizing and measuring emotion regulation and, subsequently, emotion regulation skill deficits (Bridges, Denham, & Ganiban, 2004; Gratz & Roemer, 2004; Gross & Thompson, 2007). The measure used in this study (i.e., the DERS) was developed to assess multiple domains that relate to difficulty in using emotion regulation skills. It is possible that it would be more relevant to measure the actual use of specific emotion regulation techniques or overall types of strategies used. For example, response focused strategies (vs. antecedent focused strategies) such as suppression have been associated with PTSD symptom severity (Ehring & Quack, 2010).

The current study sought to empirically test the assumption found in the literature that trauma survivors feel ashamed when primed for a fear response. The experimental paradigm demonstrated that individuals with high levels of PTSD symptoms experienced shame after exposure to the fear emotion prime. Additionally, results support that this relationship may be particularly salient for those with high levels of PTSD symptoms who experience interpersonal traumas. It may be especially pernicious for those who experience chronic interpersonal trauma exposure (e.g. child sexual abuse, intimate partner violence), since it has been found that those with multiple traumas endorse higher levels of shame than those with a single trauma exposure (Hagenaars, Fisch, & van Minnen, 2011).

Additional post hoc analyses indicated that those with high levels of PTSD symptoms who endorsed a non-interpersonal trauma reported significantly lower (vs. similar) levels of shame than their counterparts in the control condition, reflecting the trauma literature that has not found an association between shame and non-interpersonal traumas. Finally, overall emotion regulation skill deficits as well as the specific deficit of nonacceptance of emotional responses were not implicated in the relationship of PTSD symptoms and the fear emotion prime to predict

postmanipulation shame. Emotion regulation skill deficits could have served as a mechanism involved in the tested relationship between shame, fear, and PTSD symptoms, however analyses did not support this conclusion. Alternatively, the null results may be the result of the operationalization and measurement of these constructs.

Limitations and Future Directions

There are a several limitations to the current study. One limitation is the use of a non-clinical sample. Within the current study 21.6% (n = 40) endorsed a score of 44 or higher, suggesting potential PTSD diagnoses (Blanchard et al., 1996; Ruggiero et al., 2003). However, given the sample is of college students, they are likely to be more highly functioning than a trauma exposed clinical sample. Research suggests that subclinical levels of PTSD symptoms can result in distress and functional impairment comparable to full blown PTSD (e.g., Yarvis, Bordnick, Spivey, & Pedlar, 2005), however it is important that future research utilizes clinical samples.

Another limitation of the study is the lack of diversity in the sample, since the current study's sample was 70.2% female and 50.1% White. The high percentage of female participants may have influenced the study results, since women are more likely to blame themselves for their trauma than men (Tolin & Foa, 2002), which may facilitate higher levels of trauma-related shame. Additionally, women may experience higher levels of distress after an interpersonal trauma than men (Cloitre, Koenen, Gratz, & Jakupcak, 2002), because the relational self tends to play a larger role in female vs. male identities. That is, women are more likely to define themselves by their relationships (e.g., mother, spouse) and their ability to develop and maintain relationships (Sedikides & Brewer, 2001).

Future studies would benefit not only from more gender diversity in their samples, but also more racial diversity. This may be particularly relevant in the study of shame, since some research suggests that culture can influence not only an individual's propensity to experience shame, but also may influence shame-related coping and emotion regulation strategies (e.g., Bagozzi, Verbeke, & Gavino, 2003).

Finally, additional research is warranted to gain a more fine-grained understanding of mechanisms involved in the relationship between shame, fear, and PTSD. While the current study demonstrated that the fear emotion prime interacted with PTSD symptoms to predict postmanipulation shame, it is unclear the mechanism by which this process occurred. For example, it is possible that the postmanipulation fear activated hyperarousal symptoms which were implicated in the subsequent shame response or it could serve as a simple reminder of the event itself. That is, the experience of fear itself served as a reminder of a shameful event, thus serving as a shame trigger, facilitating a possible fear-shame spiral.

Additionally, longitudinal studies, if feasible, would also allow for a better understanding of the relationships among trauma exposure, fear, shame, PTSD symptoms, and emotion regulation skills and skill deficits. For example, longitudinal studies could help differentiate additional antecedents of shame. Study of these antecedents could allow for a better understanding as to which may be particularly deleterious as well as the effectiveness of different responses to cope with the shame, including the use of specific emotion regulation techniques. Further investigation into the role of emotion regulation skills and skill deficits in relation to trauma-related shame is warranted, in part, because there is research to suggest that effective emotion regulation can reduce pathology-related shame and, ultimately, facilitate, better long-

term adjustment (Gupta, Rosenthal, Mancini, Cheavens, & Lynch, 2008; Schmader & Mendes, 2015).

Conclusion

The dominant theory of PTSD and, subsequently, current gold standard PTSD treatments are based on a model of dysregulated fear. However, such models do not account for the full range of emotional responses to trauma exposure. The current study is the first to empirically test if dysregulated fear gives rise to shame, as assumed in the trauma literature. Results of the study demonstrate that PTSD symptoms interact with a fear emotion prime to give rise to the emotion of shame. Further exploration of this relationship, including possible mechanisms implicated in this relationship, represents a priority for the field of traumatology, in part, because shame may impede the treatment and emotional processing of traumas in current gold standard exposure-based treatments.

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Footnote

[1]Embarrassment is closely linked to shame and has been described as a less intense form of shame (Tomkins, 1963). Most notably for the purposes of this project, embarrassment does not evoke the same level of distress and disruption in functioning (M. Lewis, 2008), making its study less relevant to the study of posttrauma pathology.

Table 1

Sample Characteristics

	Full Sample		Experimental		Control	
Variable	*N*	% of *N*	*n*	% of *N*	*n*	% of *N*
Sample Size	178	100%	98	55.1%	80	44.9%
Gender						
Male	53	29.8%	33	18.6%	20	11.2%
Female	125	70.2%	65	36.5%	60	33.7%
Transgender	0	0%	0	0%	0	0%
Other	0	0%	0	0%	0	0%
Age	*M* = 22.75 *SD* = 7.19 Range = 18-53		*M* = 21.97 *SD* = 6.39 Range = 18-53		*M* = 23.69 *SD* = 7.99 Range = 18-51	
Ethnicity						
Hispanic/Latino	42	23.6%	29	16.3%	13	7.3%
Non-Hispanic/Non-Latino	135	75.8%	69	38.7%	66	37.1%
Declined to answer	1	0.6%	0	0.0%	1	0.6%

Race						
White	98	55.1%	52	29.2%	46	25.9%
Black	11	6.2%	5	2.8%	6	3.4%
Asian	26	14.6%	15	8.4%	11	6.2%
Pacific Islander	2	1.1%	1	0.6%	1	0.6%
American Indian	6	3.4%	3	1.7%	3	1.7%
Mixed race	14	7.9%	7	4.0%	7	4.0%
Other- Mexican (written in)	7	3.9%	5	2.8%	2	1.1%
Other- Indian (written in)	3	1.7%	2	1.1%	1	0.6%
Other- all other responses	5	2.8%	4	2.2%	1	0.6%
Declined to answer	6	3.4%	4	2.3%	2	1.1%
Marital status						
Single	124	69.7%	72	40.5%	52	29.2%
Committed relationship, not living together	27	15.2%	11	6.2%	16	9.0%
Committed relationship, living together	14	7.9%	9	5.1%	8	4.5%
Married	11	6.2%	5	2.8%	6	3.4%
Separated	1	0.6%	1	0.6%	0	0%

Divorced	1	0.6%	0	0%	1	0.6%
Education						
High school diploma	17	9.6%	9	5.1%	8	4.5%
Some college	118	66.3%	71	39.9%	47	26.4%
Associate's degree	27	15.2%	13	7.3%	14	7.9%
Bachelor's degree	12	6.7%	4	2.2%	8	4.5%
Some graduate coursework	2	1.1%	0	0%	2	1.1%
Master's degree or doctorate	2	1.1%	1	0.6%	1	0.6%
Employment						
Not employed	73	41.0%	36	20.2%	37	20.8%
Part-time (≤ 16 hrs a wk)	50	28.1%	35	19.7%	15	8.4%
Part-time (17-34 hrs a wk)	41	23.0%	20	11.2%	21	11.8%
Full time (≥ 35 hrs a wk)	14	7.9%	7	4.0%	7	4.0%
Income						
$0 – $10,000	129	72.5%	78	43.8%	51	28.7%
$10,001 – $25,000	33	18.5%	15	8.4%	18	10.1%
$25,001 – $50,000	11	6.2%	3	1.7%	8	4.5%

≥ $50,00	5	2.8%	2	1.1%	3	1.7%

Note. Experimental = Experimental condition sample subgroup; Control = Control condition sample subgroup; Black = Black or African American; Pacific Islander = Native Hawaiian or other Pacific Islander; American Indian = American Indian or Alaska Native; Hrs a wk = Hours a week.

Table 2

Index Trauma Characteristics

	Full Sample (*N* = 178)		Experimental (*n* = 98)		Control (*n* = 80)	
Variable	*N*	% of *N*	*n*	% of *N*	*n*	% of *N*
Index trauma category						
Natural disaster	5	2.8%	2	2.0%	3	3.8%
Motor vehicle accident	16	9.0%	7	7.1%	9	11.3%
Any other kind of accident	8	4.5%	4	4.1%	4	5.0%
Unexpected and sudden death of a close friend or love one	65	36.5%	33	33.7%	32	40.0%
Due to an accident	*15*	*23.1%*	*9*	*27.3%*	*6*	*18.8%*
Due to illness	*29*	*44.6%*	*14*	*42.4%*	*15*	*46.9%*
Due to suicide	*8*	*12.3%*	*1*	*3.0%*	*7*	*21.9%*
Due to murder	*8*	*12.3%*	*5*	*15.2%*	*3*	*9.4%*
Declined to answer	*5*	*7.7%*	*4*	*12.1%*	*1*	*3.1%*
Robbery	5	2.8%	4	4.1%	1	1.3%
Physical assault by stranger	3	1.7%	3	3.1%	0	0%

Witness physical assault by stranger	3	1.7%	1	1.0%	2	2.5%
Threatened to kill you	5	2.8%	2	2.0%	3	3.8%
Childhood physical abuse	8	4.5%	5	5.1%	3	3.8%
Witness family violence will growing up	4	2.2%	2	2.0%	2	2.5%
Intimate partner violence	3	1.7%	2	2.0%	1	1.3%
Childhood sexual abuse	22	12.4%	13	13.3%	9	11.3%
Sexual abuse as an adult (including rape)	5	2.8%	3	3.1%	2	2.5%
Stalked	2	1.1%	0	0%	2	2.5%
Life-threatening illness	18	10.1%	13	13.3%	5	6.3%
Abortion	1	0.6%	0	0%	1	1.3%
Other	2	1.1%	2	2.0%	0	0%
Declined to answer	3	1.7%	2	2.0%	1	1.3%
Trauma type						
Interpersonal	69	38.8%	41	41.8%	28	35.0%
Non-interpersonal	107	60.1%	56	57.1%	51	63.7%
Declined to answer	2	1.1%	1	1.0%	1	1.3%

Age at the time of index trauma	*M* = 16.55 *SD* = 6.49 Range = 4-48	*M* = 16.21 *SD* = 5.64 Range = 5-48	*M* = 16.97 *SD* = 7.41 Range = 4-45
Years since the index trauma	*M* = 7.10 *SD* = 6.73 Range = 1-38	*M* = 6.69 *SD* = 6.42 Range = 1-35	*M* = 7.61 *SD* = 7.09 Range = 1-38

Note. Unexpected death = Unexpected and sudden death of a close friend or love one; Robbery = The individual was robbed or witnessed a robbery; Physical assault by stranger = The individual was physically assaulted by a stranger or someone they did not know well; Witness physical assault by stranger = The individual witnessed a stranger physically assault someone else; Threaten to kill you = Someone threatened to kill the individual or cause them serious physical harm; Life-threatening illness = The individual or someone they loved had a life-threatening illness; Abortion = The individual or their partner had an abortion.

Table 3

Means and Standard Deviations of Study Variables

	Full Sample	Experimental	Control	
Variable	*M(SD)*	*M(SD)*	*M(SD)*	Range
Post-Shame	6.98 (3.30)	7.13 (3.27)	6.84 (3.35)	5 – 22
Post-Guilt	7.54 (3.92)	7.76 (4.21)	7.29 (3.58)	5 – 22
“Pure” Shame	.03 (2.27)	.05 (2.34)	.04 (2.2)	-8.10 – 7.77
PTSD Symptoms	34.76 (14.26)	35.25 (15.49)	34.15 (12.67)	17 – 76
Condition	.55 (.50)	---	---	1 – 2
Trauma Type	.39 (.49)	.42 (.50)	.35 (.48)	1 – 2
Emotion Regulation Deficits	84.75 (23.40)	84.82 (22.96)	84.67 (24.07)	42 – 151
Nonacceptance of Emotions	13.90 (6.20)	14.34 (6.56)	13.37 (5.73)	6 – 30
Pre-Shame	1.30 (.73)	1.37 (.81)	1.23 (.62)	1 – 5
Pre-Guilt	1.35 (.72)	1.39 (.77)	1.31 (.67)	1 – 5
Embarrassment	1.13 (.38)	1.14 (.43)	1.12 (.32)	1 – 3
Depression	8.55 (9.68)	8.86 (10.24)	8.18 (9.01)	0 – 42
Pre-Fear	8.05 (2.95)	8.05 (2.63)	7.65 (2.63)	6 – 25

Post-Fear	10.03 (5.64)	12.53 (5.79)***	6.46 (1.34)***	6 – 30
Pre-Negative Affect	14.26 (4.73)	14.26 (4.56)	13.64 (4.43)	10 – 37
Post-Negative Affect	15.18 (6.40)	17.70 (6.47)***	11.22 (2.49)***	10 – 38
Pre-Positive Affect	22.94 (8.31)	22.10 (7.90)	24.13 (8.69)	10 – 50
Post-Positive Affect	22.85 (9.03)	21.32 (7.75) +	24.74 (10.35)+	10 – 49

Note. Post-Shame = Post-emotion prime SSGS shame subscale; Post-Guilt = Post-emotion prime SSGS guilt subscale; “Pure" Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; PTSD Symptoms = PCL score; Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); Trauma Type = Non-interpersonal index trauma (coded as 0) vs. interpersonal index trauma (coded as 1); Emotion Regulation Deficits = DERS total score; Nonacceptance of Emotions = Nonacceptance of emotional responses DERS subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; Pre-Fear = Pre-manipulation PANAS-X fear subscale; Post-Fear = Postmanipulation PANAS-X fear subscale; Pre-Negative Affect = Pre-manipulation PANAS negative affect scale; Post-Negative Affect = Postmanipulation PANAS negative affect scale; Pre-Positive Affect = Pre-manipulation PANAS positive affect scale; Post-Positive Affect = Postmanipulation PANAS positive affect scale.

Significant differences between the means of study variables for the experimental and control group, as calculated with t-tests, are indicated with the following: +p≤.01, ***p≤.001.

Table 4

Correlations of Study Variables

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	Post-Shame	--										
2	Post-Guilt	.73**	--									
3	“Pure” Shame	.70**	.01	--								
4	PTSD Symptoms	.37**	.40*	.12	--							
5	Condition	.05	.06	.00	.04	--						
6	Trauma Type	.16*	.03	.20**	.21**	.07	--					
7	Emotion Regulation Deficits	.49**	.48*	.21**	.47**	.00	.06	--				
8	Nonacceptance of Emotions	.42**	.47*	.11	.39*	.08	-.01	.78**	--			
9	Pre-Shame	.51**	.48*	.23**	.37**	.10	.20*	.37**	.26**	--		
10	Pre-Guilt	.17*	.31*	-.08	.35**	.06	.11	.30**	.22**	.57**	--	

11	Embarrassment	.05	-.04	.11	-.10	.03	.10	.09	.02	.01	-.02	--
12	Depression	.52**	.48*	.26**	.63**	.04	.11	.64**	.50**	.30**	.28**	.04

Note. Post-Shame = Post-emotion prime SSGS shame subscale; Post-Guilt = Post-emotion prime SSGS guilt subscale; “Pure" Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; PTSD Symptoms = PCL score; Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); Trauma Type = Non-interpersonal index trauma (coded as 0) vs. interpersonal index trauma (coded as 1); Emotion Regulation Deficits = DERS total score; Nonacceptance of Emotions = Nonacceptance of emotional responses DERS subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Table 5

Summary of Multiple Regression Analyses of the 2-Way Interaction of Study Condition by PTSD Symptom Level Predicting Post-Emotion Prime State Shame (n = 151)

Variable	Post-Emotion Prime State Shame *b (SE b)*
Step 1:	R^2 = .15, $F(4,147) = 6.56^{***}$
Pre-Shame	$.63^{**}$ (.24)
Pre-Guilt	$-.86^{***}$ (.24)
Embarrassment	.46 (.30)
Depression	$.05^{***}$ (.02)
Step 2:	ΔR^2 = .03, $F(6,145) = 5.17^{***}$
Pre-Shame	$.59^{*}$ (.24)
Pre-Guilt	$-.85^{***}$ (.24)
Embarrassment	.41 (.30)
Depression	$.05^{**}$ (.02)
Study Condition	$.50^{*}$ (.24)
PTSD Symptoms	.00 (.01)
Step 3	ΔR^2 = .04, $F(7, 144) = 5.51^{***}$

Pre-Shame	.59* (.24)
Pre-Guilt	-.85*** (.24)
Embarrassment	.45 (.30)
Depression	.05** (.02)
Study Condition	.58* (.24)
PTSD Symptoms	-.03+ (.02)
PTSD x Condition	.05** (.02)

Note. Post-Emotion Prime State Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; PTSD Symptoms = PCL score; Study Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1). $^{+}p \leq .10$, $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 6

Summary of Multiple Regression Analyses of the 3-Way Interaction of Study Condition by PTSD Symptom Level with Index Trauma Type (Interpersonal vs. Non-Interpersonal) Predicting Post-Emotion Prime State Shame (n = 147)

Variable	Post-Emotion Prime State Shame *b (SE b)*
Step 1:	R^2 = .13, $F(4,143) = 5.20^{***}$
Pre-Shame	$.89^{***}$ (.23)
Pre-Guilt	$-.81^{***}$ (.22)
Embarrassment	.37 (.30)
Depression	.01 (.01)
Step 2:	ΔR^2 = .06, $F(7,140) = 4.56^{***}$
Pre-Shame	$.77^{***}$ (.23)
Pre-Guilt	$-.80^{***}$ (.22)
Embarrassment	.23 (.29)
Depression	.03 (.02)
Study Condition	.22 (.23)
PTSD Symptoms	-.02 (.01)

Trauma Type	.71** (.25)
Step 3	ΔR^2 =.17, F(10, 137) = 7.46***
Pre-Shame	.96*** (.21)
Pre-Guilt	-1.05*** (.20)
Embarrassment	.10 (.27)
Depression	.02+ (.02)
Study Condition	-.76** (.28)
PTSD Symptoms	-.03+ (.02)
Trauma Type	-.60+ (.34)
Study Condition x PTSD Symptoms	-.02 (.02)
Study Condition x Trauma Type	2.29*** (.46)
PTSD Symptoms x Trauma Type	.05** (.02)
Step 4	ΔR^2 = .02, F(11, 136)=7.48***
Pre-Shame	.97*** (.21)
Pre-Guilt	-1.07*** (.20)
Embarrassment	.10 (.27)
Depression	.02 (.02)

Study Condition	-.86** (.28)
PTSD Symptoms	-.01 (.02)
Trauma Type	-.60+ (.33)
Study Condition x PTSD Symptoms	-.05** (.02)
Study Condition x Trauma Type	2.30*** (.45)
PTSD Symptoms x Trauma Type	.00 (.03)
Study Condition x PTSD Symptoms x Trauma Type	.08* (.04)

Note. Post-Emotion Prime State Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; Study Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); PTSD Symptoms = PCL score; Trauma Type = Non-interpersonal index trauma (coded as 0) vs. interpersonal index trauma (coded as 1). $^{+}p \leq .10$, $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 7

Summary of Multiple Regression Analyses of the 3-Way Interaction of Study Condition by PTSD Symptom Level with Overall Emotion Regulation Skill Deficits Predicting Post-Emotion Prime State Shame (n = 151)

Variable	Post-Emotion Prime State Shame *b (SE b)*
Step 1:	R^2 = .07, F(4,147) = 2.94*
Pre-Shame	.66*** (.25)
Pre-Guilt	-.49*** (.22)
Embarrassment	.28 (.33)
Depression	.03 (.02)
Step 2:	ΔR^2 = .03, F(7,144) = 2.30*
Pre-Shame	.57*** (.26)
Pre-Guilt	-.49*** (.22)
Embarrassment	.21 (.33)
Depression	.02 (.02)
Study Condition	.51 (.26)
PTSD Symptoms	.00 (.01)

Emotion Regulation Deficits	.00 (.01)
Step 3	ΔR^2 =.03, F(10, 141) = 2.02*
Pre-Shame	.54*** (.26)
Pre-Guilt	-.44*** (.22)
Embarrassment	.17 (.33)
Depression	.01 (.02)
Study Condition	.55** (.26)
PTSD Symptoms	.00 (.02)
Emotion Regulation Deficits	.00 (.01)
Study Condition x PTSD Symptoms	.00 (.02)
Study Condition x Emotion Regulation Deficits	.02^{+} (.01)
PTSD Symptoms x Emotion Regulation Deficits	.00 (.00)
Step 4	ΔR^2 = .00, F(11, 140)=1.84*
Pre-Shame	.55* (.26)
Pre-Guilt	-.44* (.22)
Embarrassment	.18 (.33)
Depression	.01 (.02)

Study Condition	.50^{+} (.28)
PTSD Symptoms	.00 (.02)
Emotion Regulation Deficits	.00 (.01)
Study Condition x PTSD Symptoms	.00 (.02)
Study Condition x Emotion Regulation Deficits	.02^{+} (.01)
PTSD Symptoms x Emotion Regulation Deficits	.00 (.00)
Study Condition x PTSD Symptoms x Emotion Regulation Deficits	.00 (.00)

Note. Post-Emotion Prime State Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; Study Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); PTSD Symptoms = PCL score; Emotion Regulation Deficits = DERS total score. $^{+}p \leq .10$, $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 8

Summary of Multiple Regression Analyses of the 2-Way Interaction of Study Condition by Overall Emotion Regulation Skill Deficits Predicting Post-Emotion Prime State Shame (n = 149)

Variable	Post-Emotion Prime State Shame *b (SE b)*
Step 1:	R^2 = .13, $F(4,145) = 5.59^{***}$
Pre-Shame	$.65^{**}$ (.24)
Pre-Guilt	$-.81^{***}$ (.24)
Embarrassment	.31 (.30)
Depression	$.05^{**}$ (.02)
Step 2:	ΔR^2 = .04, $F(6, 143) = 4.87^{***}$
Pre-Shame	$.59^{*}$ (.24)
Pre-Guilt	$-.80^{***}$ (.24)
Embarrassment	.24 (.30)
Depression	$.04^{*}$ (.02)
Study Condition	$.59^{*}$ (.24)
Emotion Regulation Deficits	.00 (.01)
Step 3	ΔR^2 =.02, $F(7, 142) = 4.76^{***}$

Pre-Shame	.58* (.24)
Pre-Guilt	-.75** (.24)
Embarrassment	.23 (.30)
Depression	.04* (.02)
Study Condition	.61** (.24)
Emotion Regulation Deficits	.00 (.01)
Study Condition x Emotion Regulation Deficits	.02+ (.01)

Note. Post-Emotion Prime State Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; Study Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); Emotion Regulation Deficits = DERS total score. $^{+}p \leq .10$, $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 9

Summary of Multiple Regression Analyses of the 3-Way Interaction of Study Condition by PTSD Symptom Level with Nonacceptance of Emotional Responses Predicting Post-Emotion Prime State Shame (n = 148)

Variable	Post-Emotion Prime State Shame *b (SE b)*
Step 1:	R^2 = .12, $F(4, 144)=5.03^{***}$
Pre-Shame	$.78^{**}$ (.27)
Pre-Guilt	$-.59^{*}$ (.25)
Embarrassment	.40 (.32)
Depression	$.05^{**}$ (.02)
Step 2:	ΔR^2 = .02, $F(7, 141)=3.42^{**}$
Pre-Shame	$.75^{**}$ (.27)
Pre-Guilt	$-.61^{*}$ (.26)
Embarrassment	.39 (.32)
Depression	$.04^{*}$ (.02)
Study Condition	$.42^{+}$ (.25)
PTSD Symptoms	.01 (.01)
Nonacceptance of Emotion	-.01 (.02)

Step 3	ΔR^2 = .01, $F(10, 138)=2.59^{**}$
Pre-Shame	$.74^{**}$ (.27)
Pre-Guilt	$-.61^{*}$ (.26)
Embarrassment	.40 (.33)
Depression	$.04^{*}$ (.02)
Study Condition	$.44^{+}$ (.25)
PTSD Symptoms	.00 (.02)
Nonacceptance of Emotion	-.03 (.04)
Study Condition x PTSD Symptoms	.02 (.02)
Study Condition x Nonacceptance of Emotion	.03 (.05)
PTSD Symptoms x Nonacceptance of Emotion	.00 (.00)
Step 4	ΔR^2 = .00, $F(11, 137)=2.38^{**}$
Pre-Shame	$.76^{**}$ (.28)
Pre-Guilt	$-.61^{*}$ (.26)
Embarrassment	.39 (.33)
Depression	$.04^{*}$ (.02)
Study Condition	.38 (.27)

PTSD Symptoms	.00 (.02)
Nonacceptance of Emotion	-.03 (.04)
Study Condition x PTSD Symptoms	.02 (.02)
Study Condition x Nonacceptance of Emotion	.03 (.05)
PTSD Symptoms x Nonacceptance of Emotion	.00 (.00)
Study Condition x PTSD Symptoms X Nonacceptance of Emotion	.00 (.01)

Note. Post-Emotion Prime State Shame = Residuals of the regression of SSGS shame subscale on SSGS guilt subscale; Pre-Shame = PANAS item “ashamed”; Pre-Guilt = PANAS item "guilty"; Embarrassment = PANAS item "blushing"; Depression = DASS depression subscale; Study Condition = Control study condition with neutral emotion prime (coded as 0) vs. experimental study condition with a fear emotion prime (coded as 1); PTSD Symptoms = PCL score; Nonacceptance of Emotions = Nonacceptance of emotional responses DERS subscale. $^{+}p \leq .10$, $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

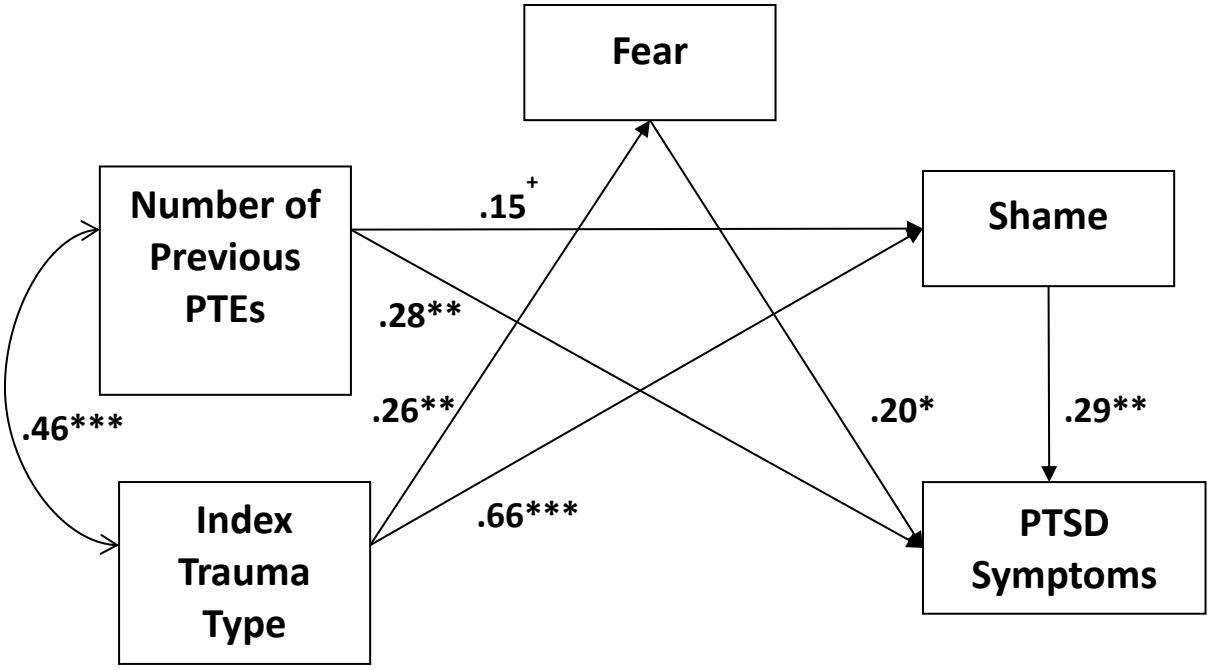

Figure 1. Final structural equation model with standardized coefficients of the associations among the two conceptually linked PTSD risk factors (i.e., experiencing an interpersonal vs. non-interpersonal index trauma, number of previous potentially traumatic events [PTEs]), shame, fear, and current PTSD symptoms.

$^{+}p<.10$ $*p<.05$ $**p<.01$ $***p<.001$.

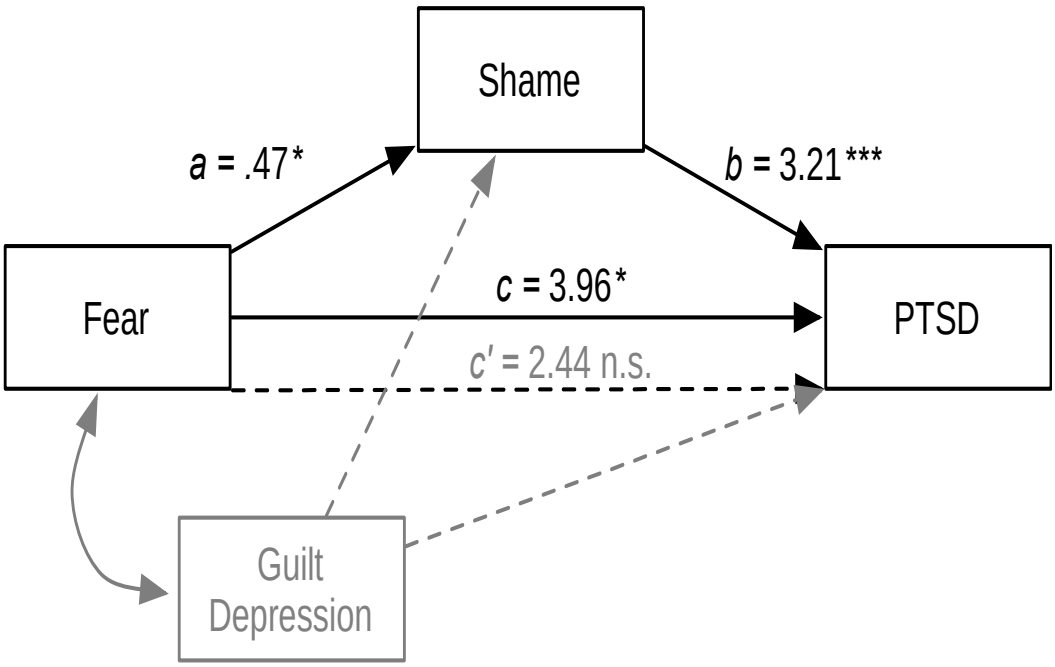

Figure 2. Model assessing the indirect effects of fear on PTSD symptom severity via shame, controlling for state guilt and depression symptoms.

		Time ---------->		
		Pre-Test	Emotion Prime	Post-Test
Experimental Group	R	O_1	X_1 (Fear Prime)	O_2
Control Group	R	O_3	X_2 (Neutral Prime)	O_4

DV: Postmanipulation Shame

Figure 3. Design overview.

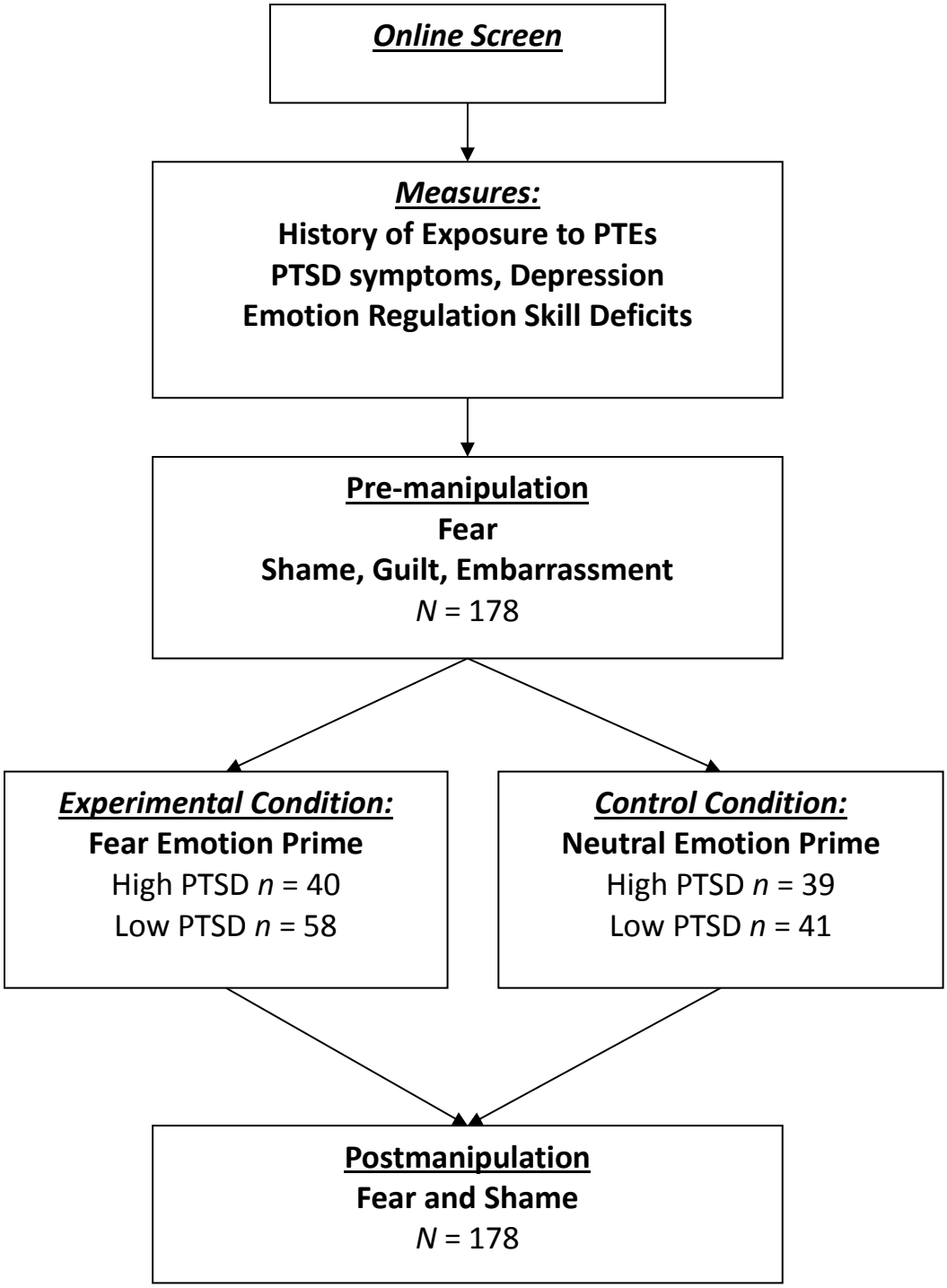

Figure 4. Procedure overview. High PTSD and low PTSD symptoms were calculated using a median split.

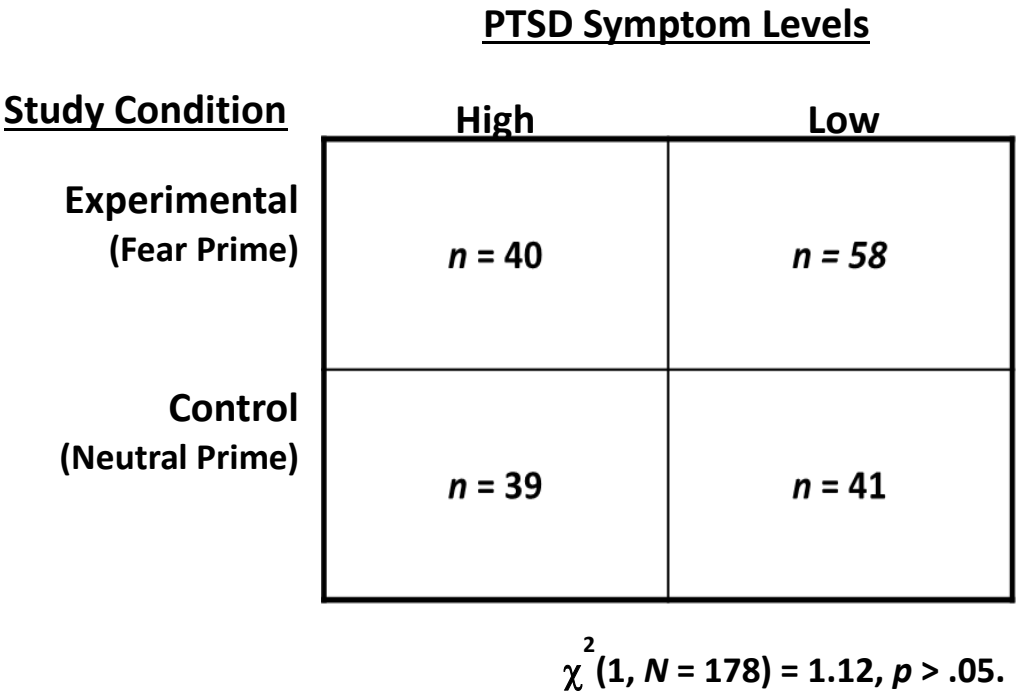

Figure 5. The cross tabulation of study condition (control vs. experimental) and PTSD symptom levels (high vs. low, based on a median split).

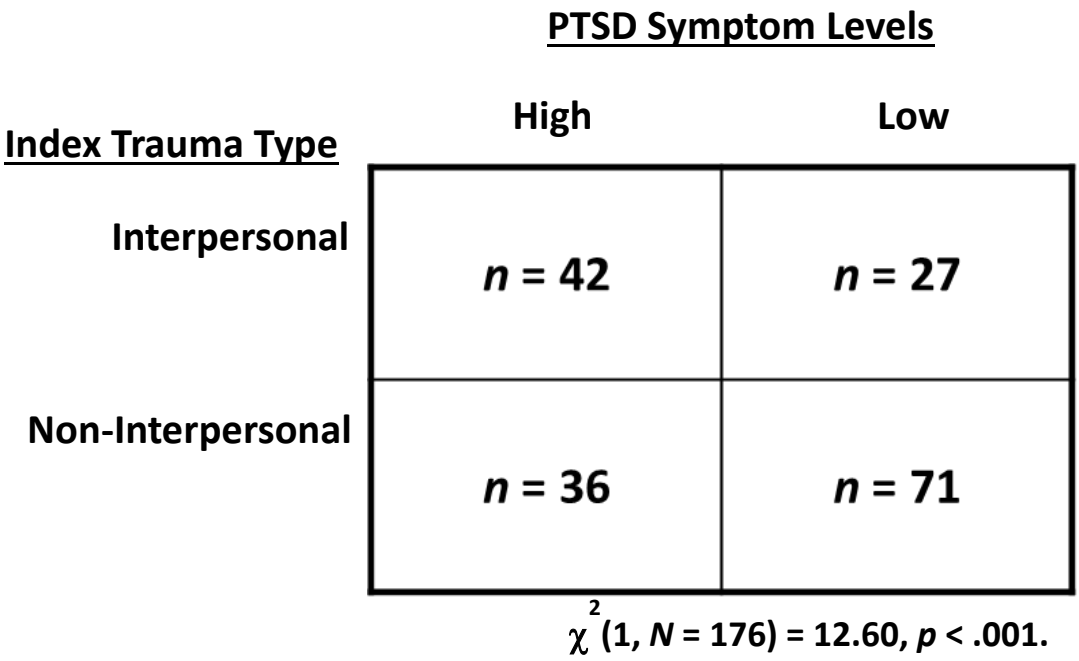

Figure 6. The cross tabulation of type of index trauma endorsed (interpersonal vs. non-interpersonal) and PTSD symptom levels (high vs. low, based on a median split).

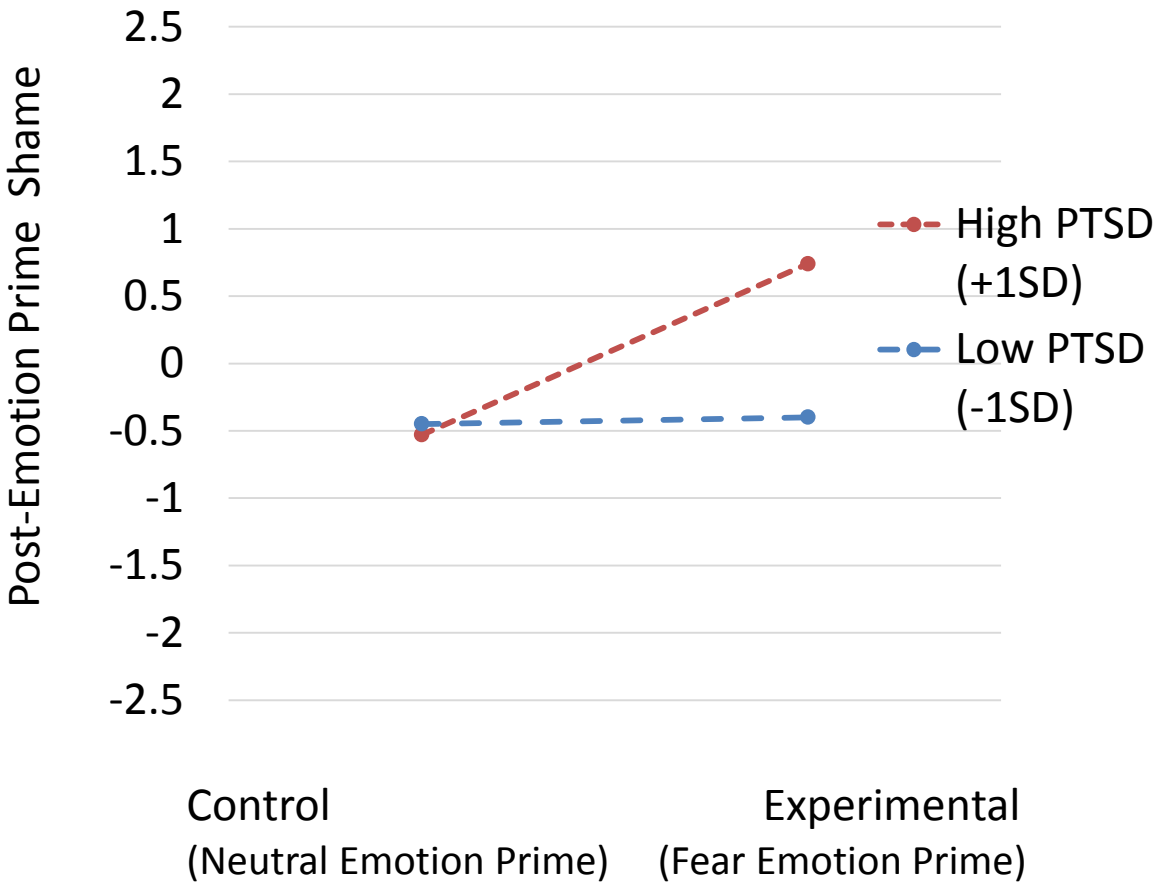

Figure 7. Interaction of PTSD symptom level with study condition to predict standardized residualized post-emotion prime state shame scores.

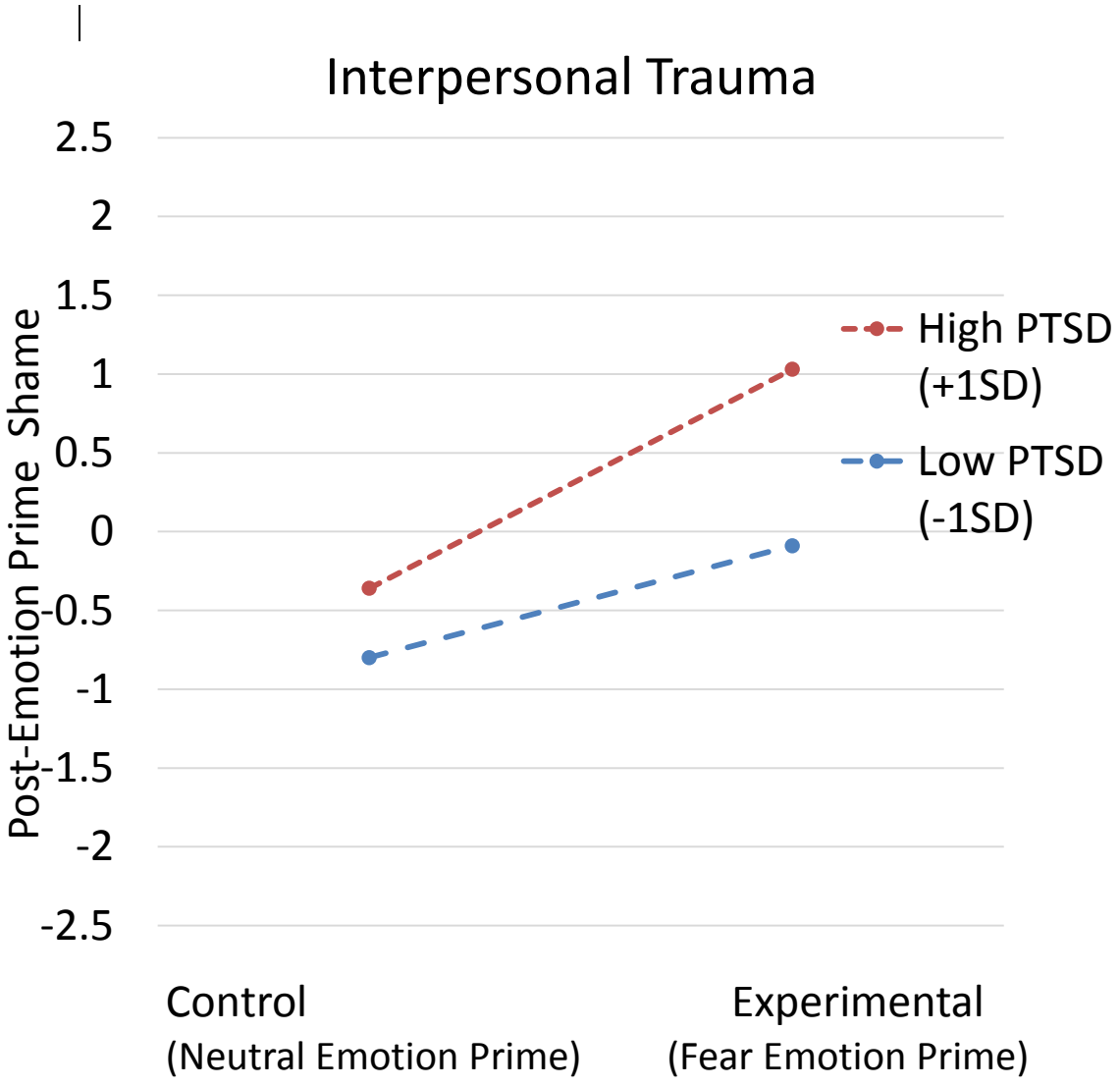

Figure 8a. Three-way interaction of PTSD symptom level with study condition by interpersonal index trauma type to predict standardized residualized post-emotion prime state shame scores.

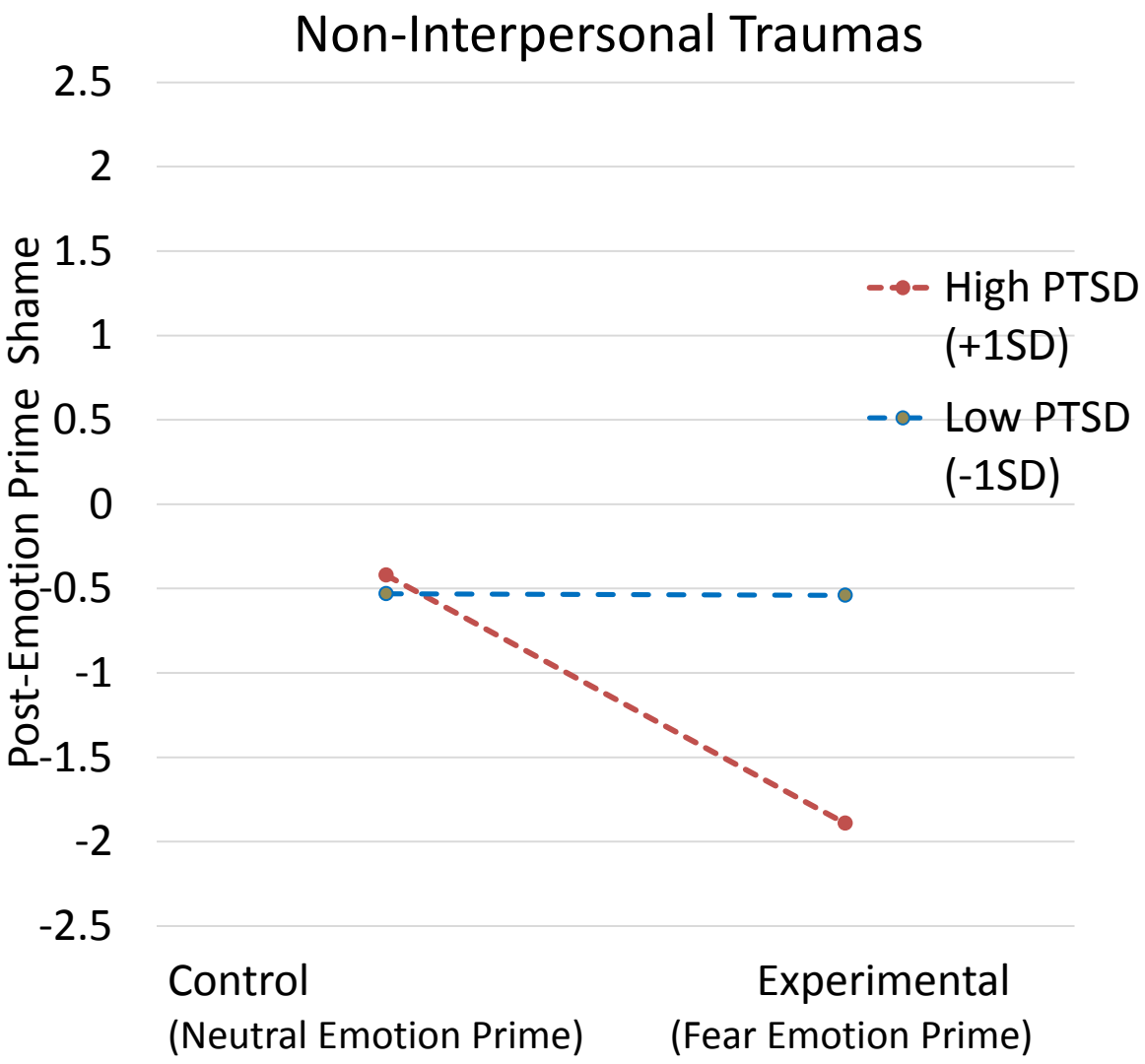

Figure 8b. Three-way interaction of PTSD symptom level with study condition by non-interpersonal index trauma type to predict standardized residualized post-emotion prime state shame scores.

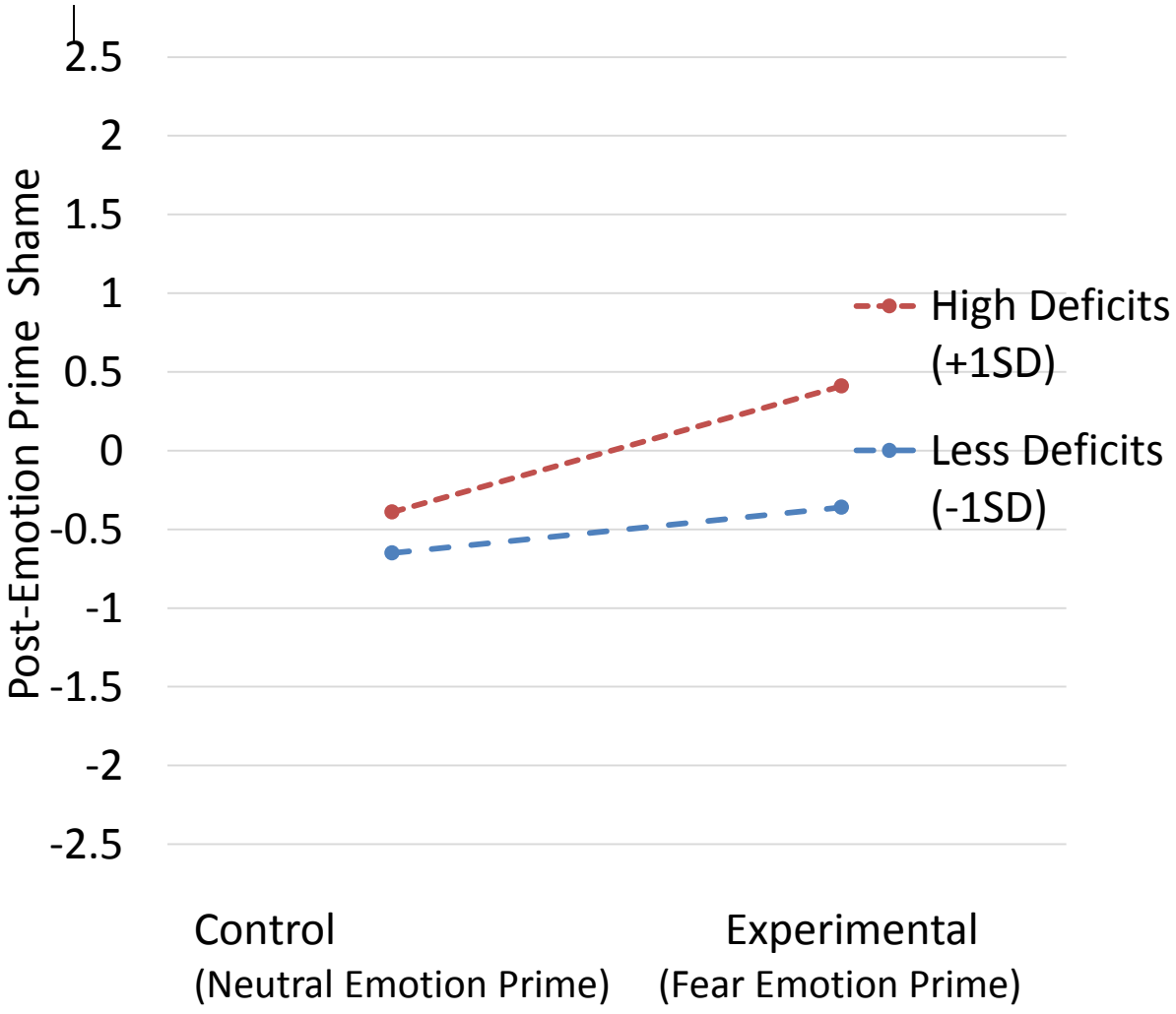

Figure 9. Interaction of level of emotion regulation skill deficits with study condition to predict standardized residualized post-emotion prime state shame scores.

APPENDIX A: MEASURES

Demographic Questions

1. Do you identify as:
☐ Male
☐ Female
☐ Other (please specify)

2. How old are you?
Please enter your age. ___

3. What best describes your ethnicity?
☐ Hispanic/Latino
☐ Non-Hispanic/Latino

4. What best describes your race? (Please mark all that apply)
☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☐ White
☐ Other(s) - please specify

5. What is your marital status?
☐ Single
☐ In a committed relationship, but not living together
☐ Living with someone
☐ Married
☐ Separated
☐ Divorced
☐ Widowed

6. Which of these best describes your education level?
☐ Some High School
☐ High School Diploma
☐ G.E.D.
☐ Some college coursework
☐ Associate's Degree
☐ Bachelor's Degree
☐ Some graduate-level coursework
☐ Master's Degree or Doctorate (Ph.D., M.D., D.D.S, etc.)

7. Which of these best describes your income level?
☐ $0-$10,000
☐ $10,000 - $25,000
☐ $25,001 - $50,000
☐ $50,001 - $75,000
☐ $75,000 - $100,000
☐ $100,001-$125,000
☐ Above $125,001-$150,000

8. Are you employed?

☐ Not employed
☐ Part-time (<16 hours a week)
☐ Part-time (17-34 hours a week)
☐ Full-time (35+ hours a week)

Traumatic Life Events Questionnaire

The purpose of this questionnaire is to identify significant life experiences that can affect a person's emotional well-being or later quality of life. The events listed below are far more common than many people realize. Please read each question carefully and mark the answers that best describe your experience

1. **Have you ever experienced a natural disaster (a flood, hurricane, earthquake, etc.)?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How badly were you injured?
   1 2 3 4 5 6 7
   Was someone you cared about or close by seriously injured or killed
   1 2 3 4 5 6 7

2. **Were you involved in a motor vehicle accident for which you received medical attention or that badly injured or killed someone?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How badly were you injured?
   1 2 3 4 5 6 7

3. **Have you been involved in any other kind of accident where you or someone else was badly hurt? (examples: a plane crash, a drowning or near drowning, an electrical or machinery accident, an explosion, home fire, chemical leak, or overexposure to radiation or toxic chemicals)**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How badly were you injured?
   1 2 3 4 5 6 7

4. **Have you lived, worked, or had military service in a war zone?**
   Yes / No
   ***If yes,* were you ever exposed to warfare or combat? (For example, in the vicinity of a rocket attack or people being fired upon; seeing someone getting wounded or killed)**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How seriously were you injured or wounded?
   1 2 3 4 5 6 7

5. **Have you experienced the unexpected and sudden death of a close friend or loved one?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: How many unexpected and sudden death were **due to an accident**? ____
   How many unexpected and sudden death were **due to illness**? ____

How many unexpected and sudden death were **due to suicide**? ____
How many unexpected and sudden death were **due to murder**? ____

6. **Have you been robbed or witnessed a robbery—where the robber(s) used or displayed a weapon?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How seriously were you injured?
   1 2 3 4 5 6 7

7. **Have you ever been hit or beaten up and badly hurt by a stranger or someone you didn't know very well?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
   How seriously were you injured?
   1 2 3 4 5 6 7

8. **Have you seen a stranger (or someone you didn't know very well) attack or beat up another person and seriously injure or kill them?**
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

9. **Has anyone threatened to kill you or cause you serious physical** harm?
   never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
   If this happened: How many times were you threatened by a stranger? ____
   How many times were you threatened by a friend or acquaintance? ____
   How many times were you threatened by an intimate partner? ____
   How many times were you threatened by a relative? ____

10. **While growing up, were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

11. **While growing up: Did you witness family violence? (For example, your father hitting your mother; or any family member beating up or inflicting bruises, bums or cuts on another family member)**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

12. **Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
    If this happened: *On a scale of 1-7 (1=not at all; 7=extremely):*
    How badly were you injured?
    1 2 3 4 5 6 7

13. **Before your 13th birthday: Did anyone—who was at least 5 years older than you— touch or**

fondle your body in a sexual way or make you touch or fondle their body in a sexual way?
never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

If this happened: How many times was this person a **stranger**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **friend or acquaintance**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **parent or caregiver**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person **another relative**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

14. **Before your 13th birthday: Did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body—against your will or without your consent?**
never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

If this happened: How many times was this person a **stranger**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **friend or acquaintance**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **parent or caregiver**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person **another relative**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

15. **<u>After</u> your 13th birthday and <u>before</u> your 18th birthday: Did anyone touch sexual parts of your body or made you touch sexual parts of their body—against your will or without your consent?**
never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

<u>If</u> <u>this</u> <u>happened</u>: How many times was this person a **stranger**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **friend or acquaintance**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **parent or caregiver**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person **another relative**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

16. **<u>After</u> your 18th birthday: Did anyone touch sexual parts of your body or made you touch sexual parts of their body-against your will or without your consent?**

never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

<u>If</u> <u>this</u> <u>happened</u>: How many times was this person a **stranger**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **friend or acquaintance**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person a **parent or caregiver**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

How many times was this person **another relative**? ____

On a scale of 1-7 (1=none; 7=an extremely high amount)

How much threat or force was used?
1 2 3 4 5 6 7

How badly were you injured?
1 2 3 4 5 6 7

Was there ever oral, anal, or vaginal penetration?
Yes / No

17. **Has anyone stalked you—in other words: followed you or kept track of your activities—causing you to feel intimidated or concerned for your safety?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
    If this happened: How many times was this person a **stranger**? ____
    How many times was this person a **friend or acquaintance**? ____
    How many times was this person an **intimate partner**? ____

18. **Have you or a loved one ever had a life threatening illness?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
    If this happened: How many times did it happen to you? ____
    How many times did it happen to a loved one? ____

19. **Have you ever had a miscarriage?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____
    If this happened: How many times did it happen after you were physically injured? ____

20. **Have you ever had an abortion?**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

21. **Have you experienced (or witnessed) any other events that were life threatening, caused serious injury, or were highly disturbing or distressing? (For example, being kidnapped or held hostage; lost in the wilderness; violent death of a pet; a serious animal bite; permanent physical injury to a loved one)**
    never____ once _____ twice _____ 3 times____ 4 times____ 5 times____ more than 5 times _____

    Please briefly describe each event:
    a. _____
    b. _____
    c. _____
    d. _____
    e. _____
    f. _____
    g. _____
    h. _____

i. _____

22. If any of the events (listed above), happened to you, which <u>one</u> event CAUSES YOU THE MOST DISTRESS?
***Indicate Item #*:___**

23. At what AGE did this event (last) happen? _____
23. What YEAR did this event (last) happen? _____

24. How much distress does this event or experience cause you? *(Circle the best answer)*
No Distress Slight Distress Moderate Distress Considerable Distress Extreme Distress

PTSD Checklist – Specific Version (PCL-S)

Instructions: Now please think about the event that you indicated is currently the most upsetting to you. Below is a list of problems and complaints that individuals sometimes have in response to stressful life experiences. Again, with the adverse event that you said was most currently most distressing, please read each below statement carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last month*.

No.	Response:	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience from the past?					
2.	Repeated, disturbing *dreams* of a stressful experience from the past?					
3.	Suddenly *acting* or *feeling* as if a stressful experience *were happening again* (as if you were reliving it)?					
4.	Feeling *very upset* when *something reminded* you of a stressful experience from the past?					
5.	Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful experience from the past?					
6.	Avoid *thinking about* or *talking about* a stressful experience from the past or avoid *having feelings* related to it?					
7.	Avoid *activities* or *situations* because *they remind you* of a stressful experience from the past?					
8.	Trouble *remembering important parts* of a stressful experience from the past?					
9.	Loss of *interest in things that you used to enjoy?*					
10.	Feeling *distant* or *cut off* from other people?					
11.	Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					

12.	Feeling as if your *future* will somehow be *cut short*?					
13.	Trouble *falling* or *staying asleep*?					
14.	Feeling *irritable* or having *angry outbursts*?					
15.	Having *difficulty concentrating*?					
16.	Being *"super alert"* or watchful on guard?					
17.	Feeling *jumpy* or easily startled?					

Depression Subscale of the DASS-21

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1.	I couldn't seem to experience any positive feeling at all	0	1	2	3
2.	I found it difficult to work up the initiative to do things	0	1	2	3
3.	I felt that I had nothing to look forward to	0	1	2	3
4.	I felt down-hearted and blue	0	1	2	3
5.	I was unable to become enthusiastic about anything	0	1	2	3
6.	I felt I wasn't worth much as a person	0	1	2	3
7.	I felt that life was meaningless	0	1	2	3

Difficulties in Emotion Regulation Scale (DERS)

Note. **The nonacceptance of emotional experience subscale item are bolded and asterisked.***

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

1	2	3	4	5
Almost never	Sometimes	About half the time	Most of the time	Almost always
(0-10%)	(11-35%)	(36-65%)	(66-90%)	(91-100%)

_____ 1. I am clear about my feelings.
_____ 2. I pay attention to how I feel.
_____ 3. I experience my emotions as overwhelming and out of control.
_____ 4. I have no idea how I am feeling.
_____ 5. I have difficulty making sense out of my feelings.
_____ 6. I am attentive to my feelings.
_____ 7. I know exactly how I am feeling.
_____ 8. I care about what I am feeling.
_____ 9. I am confused about how I feel.
_____ 10. When I'm upset, I acknowledge my emotions.
_____ 11. When I'm upset, I become angry with myself for feeling that way.*
_____ 12. When I'm upset, I become embarrassed for feeling that way.*
_____ 13. When I'm upset, I have difficulty getting work done.
_____ 14. When I'm upset, I become out of control.
_____ 15. When I'm upset, I believe that I will remain that way for a long time.
_____ 16. When I'm upset, I believe that I'll end up feeling very depressed.
_____ 17. When I'm upset, I believe that my feelings are valid and important.
_____ 18. When I'm upset, I have difficulty focusing on other things.
_____ 19. When I'm upset, I feel out of control.
_____ 20. When I'm upset, I can still get things done.
_____ 21. When I'm upset, I feel ashamed with myself for feeling that way.*
_____ 22. When I'm upset, I know that I can find a way to eventually feel better.

_____ **23. When I'm upset, I feel like I am weak.***

_____ 24. When I'm upset, I feel like I can remain in control of my behaviors.

_____ **25. When I'm upset, I feel guilty for feeling that way.***

_____ 26. When I'm upset, I have difficulty concentrating.

_____ 27. When I'm upset, I have difficulty controlling my behaviors.

_____ 28. When I'm upset, believe that there is nothing I can do to make myself feel better.

_____ **29. When I'm upset, I become irritated with myself for feeling that way.***

_____ 30. When I'm upset, I start to feel very bad about myself.

_____ 31. When I'm upset, I believe that wallowing in it is all that I can do.

_____ 32. When I'm upset, I lose control over my behaviors.

_____ 33. When I'm upset, I have difficulty thinking about anything else.

_____ 34. When I'm upset, I take time to figure out what I'm really feeling.

_____ 35. When I'm upset, it takes me a long time to feel better.

_____ 36. When I'm upset, my emotions feel overwhelming.

PANAS and PANAS-X FEAR SUBSCALE

Note. **Items 1-20 comprise the PANAS. Item 21 is the embarrassment item added to the PANAS, and it is bolded and asterisked.* The PANAS-X Fear Subscale items (7, 15, 18, 22, and 23) are bolded and have double asterisks. ****

INSTRUCTIONS: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate number from the five-point scale indicating how you feel right now.

1	**2**	**3**	**4**	**5**
very slightly or not at all	a little	moderately	quite a bit	extremely

1)_____ interested

2)_____ distressed

3)_____ excited

4)_____ upset

5)_____ strong

6)_____ guilty

7)_____ scared**

8)_____ hostile

9)_____ enthusiastic

10)_____ proud

11)_____ irritable

12)_____ alert

13)_____ ashamed

14)_____ inspired

15)_____ nervous**

16)_____ determined

17)_____ attentive

18)_____ jittery**

19)_____ active

20)_____ afraid

21)_____ blushing*

22)_____ shaky**

23)_____ frightened**

STATE SHAME AND GUILT SCALE (SSGS)

The following are some statements which may or may not describe how you are feeling right now. Please rate each statement using the 5-point scale below. Remember to rate each statement based on how you are feeling right at this moment.

	Not feeling this way at all	Feeling this way somewhat	Feeling this way very strongly
1. I feel good about myself	1----------2----------3----------4----------5		
2. I want to sink into the floor and disappear	1----------2----------3----------4----------5		
3. I feel remorse, regret	1----------2----------3----------4----------5		
4. I feel worthwhile, valuable	1----------2----------3----------4----------5		
5. I feel small	1----------2----------3----------4----------5		
6. I feel tension about something I've done.	1----------2----------3----------4----------5		
I feel capable, useful	1----------2----------3----------4----------5		
I feel like I am a bad person	1----------2----------3----------4----------5		
7. I cannot stop thinking about something bad I have done	1----------2----------3----------4----------5		
8. I feel proud	1----------2----------3----------4----------5		
9. I feel humiliated, disgraced	1----------2----------3----------4----------5		
10. I feel like apologizing, confessing	1----------2----------3----------4----------5		
11. I feel pleased about something I have done	1----------2----------3----------4----------5		
12. I feel worthless, powerless	1----------2----------3----------4----------5		
13. I feel bad about something I have done	1----------2----------3----------4----------5		